Thermodynamics of Starch Gelatinization

A Thesis submitted

to the Graduate School

Valdosta State University

in partial fulfillment of requirements

for the degree of

MASTER OF SCIENCE

in Biology

in the Department of Biology

of the College of Science and Mathematics

May 2025

Maame Esi Baidoo

BSc, Kwame Nkrumah University of Science and Technology, 2019

This dissertation, "Thermodynamics of Starch Gelatinization," by Maame Esi Baidoo, is approved by:

Dissertation Committee Chair

Jonghoon Kang, Ph.D.

Professor of Biology

Committee Member

James A. Nienow, Ph.D.

Professor of Biology

Shafat Mubin, Ph.D.

Associate Professor of Physics

Associate Provost for Graduate Studies and Research

Becky K. da Cruz, Ph.D., J.D.

Professor of Criminal Justice

Defense Date

March 28th, 2025

FAIR USE

DUPLICATION

I authorize the Head of Interlibrary Loan or the Head of Archives at the Odum Library at Valdosta State University to arrange for duplication of this thesis for educational or scholarly purposes when so requested by a library user. The duplication shall be at the user's expense.

Signature 

I refuse permission for this thesis to be duplicated in whole or in part.

Signature _____

ABSTRACT

Starch gelatinization as a method of processing starch is widely used in both cooking and industrial processes. In this study, data on the thermal properties of starch across a wide range of starch sources was collected from the PubMed database and analyzed to increase understanding of the thermodynamics of the starch gelatinization process. This study also explored the compensation between enthalpy and entropy known as enthalpy–entropy compensation in starch gelatinization which is also observed in many other reactions and found they have a direct effect on the gelatinization temperature of the starch. The compensation temperature which is the slope of an enthalpy–entropy compensation plot is also compared between different starch sources, revealing how one starch differs from another in terms of its gelatinization process. The origin of enthalpy–entropy compensation, a topic of ongoing debate among researchers, is also examined for starch gelatinization using two methods discussed in the literature. Our findings suggest that it is more likely to have a physical origin rather than being a result of experimental artifacts. The findings of this study can guide researchers in exploring the applications of enthalpy–entropy compensation and compensation temperature in understanding other thermally driven systems. Additionally, they can aid the food industry in processing starch foods more efficiently.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Chapter I

INTRODUCTION

Starch is a type of complex carbohydrate produced by plants to store energy. They are the most consumed carbohydrate worldwide and are present in large quantities in many foods, such as potato, rice, corn, and wheat. Starch exists as starch granules, which are highly organized structures containing amylose and amylopectin and has many applications because of its distinctive functions and thermal properties (Ratnayake & Jackson, 2009). Foods containing starch are usually gelatinized before consumption. Gelatinization results in a phase transition of the starch from an ordered state to a disordered state (Wang et al., 2016). Starch gelatinization is an endothermic phase transition that happens when starch is heated in water, followed by diffusion of water into its crystalline areas as the gelatinization progresses, resulting in disorderliness in its structure (Li & Gong, 2020; Liu et al., 2011). During this process, the starch granules swell and burst due to the absorbed water and applied heat. As a result, amylose from the starch granules seeps into the solution, thereby increasing its viscosity and resulting in a gel-like substance (Jenkins & Donald, 1998; Li et al., 2024). The changes the starch goes through during gelatinization determine the quality, nutritional value and the shelf-life of the end product (Wang et al., 2016). Therefore, manipulating the process can lead to desired results including the production of healthier foods and with the desired texture (Li & Gong, 2020). Gelatinized starch is known to be highly susceptible to degradation by

enzymes compared to raw starch, and therefore starch that is not fully gelatinized could be good for human health by reducing the rate of starch digestion, which is particularly important in diabetic patients (Chung et al., 2006; Li, 2022). Starch gelatinization is therefore an important topic in food digestion, the concept of glycemic index and in diabetic patients (Chung et al., 2006; Li et al., 2024).

In this study, data on starch gelatinization was collected and analyzed for different foods containing starch. The data collected includes the peak gelatinization temperature (Tp) and enthalpy (ΔH) of gelatinization for each sample. The thermal properties of starch are commonly expressed by three gelatinization temperatures: onset, peak, and conclusion temperatures, as well as the ΔH of gelatinization (Shiotsubo & Takahashi, 1984); these provide an insight into the nature of the gelatinization process for each sample. These properties are usually measured using a Differential Scanning Calorimeter (DSC). This study also investigates a phenomenon known as enthalpy–entropy compensation (EEC) which exists in various reactions, with only one case of its existence in starch gelatinization reported so far (Kang et al., 2021). ΔH and entropy (ΔS) are both thermodynamic quantities; the former represents the total heat content of a system while the latter represents a system's thermal energy unavailable for doing useful work or the degree of disorderliness in the system. EEC is the linear relationship between ΔH and ΔS of a series of similar reactions. This means that as ΔH increases, ΔS also increases. In other words, as the total heat content or energy of a system increases, there is also an increase in the disorderliness of the system. EEC is still not fully understood, and it has often been questioned whether it is a truly physical phenomenon or a coincidence due to

statistical errors or results from the misinterpretation of experimental data (Khrapunov, 2018; Starikov & Nordén, 2007).

The origin of EEC in starch gelatinization is also investigated and reported, whether it is due to experimental errors or intrinsic properties of the starch, using two methods proposed by researchers (Griessen & Dam, 2021; Krug et al., 1976a, 1976b). This is the first study to investigate starch gelatinization over a wide range of starch sources and experimental conditions, as well as EEC and its origin in starch gelatinization. This study also compares the thermodynamic parameters of one starch to the other to understand the similarities between starches in terms of their thermal properties. These insights improve understanding of how different starches influence the gelatinization process differently. It can also serve as a guide to food industries in producing starch products in ways that save resources and time.

Chapter II

LITERATURE REVIEW

Starch

Starch is primarily produced by plants, and some cyanobacteria, and is the largest storage carbohydrate on Earth (Apriyanto et al., 2022). Cereal, root and tuber crops are the major sources of starch and most diets consumed by people contain high portions of starch foods like rice, wheat, maize, potato, sorghum, or barley (Burrell, 2003; Chakraborty et al., 2022; Wang et al., 2016; Zhu et al., 2023). Starch accounts for at least 35% of the daily calorie intake of people in developed countries, and in places like Africa or the Far East, it can account for about 80% of their daily calorie intake (Burrell, 2003). Starch is not only used for food but also in medicine, as an adhesive, in textiles, fuels, dyes, and furniture (Apriyanto et al., 2022; Burrell, 2003; Wang et al., 2016). Starch is therefore important both as a source of food and raw materials for industries. The two main components of starch are amylose and amylopectin (Burrell, 2003; Zhu et al., 2023). Amylopectin has a higher molecular weight with a lot of short-chain branches whereas amylose has a lower molecular weight with a small number of long-chain branches (Zhu et al., 2023). These two components, together with small quantities of lipid and phosphate, make up a starch granule (Burrell, 2003). Native starch granules are water-insoluble and very resistant to enzymatic hydrolysis, and therefore have to be modified to produce starch products with desirable properties (Apriyanto et al., 2022;

Chakraborty et al., 2022). This modification can be done before starch crops are harvested from plants through plant breeding or after through the use of physical, chemical, enzymatic or biotechnology methods, or combinations of these methods (Apriyanto et al., 2022; Burrell, 2003).

Similarities and Differences Among Starch Sources

The botanical source of starch is known to be a determinant of its structural, functional, thermal, *in vitro* digestibility and rheological properties (Bajaj et al., 2018; Kovrlija et al., 2020; Zhang et al., 2017). The size and shape of starch granules, proportions of molecules like amylose and amylopectin, and crystal structures (A- or B-type crystals) differ among different starch sources (Apriyanto et al., 2022; Burrell, 2003; Kovrlija et al., 2020), giving rise to different gelatinization properties (Guo et al., 2023). Amylose content can range from very minute quantities up to 70% (Apriyanto et al., 2022). The shape of the granules can be oval, elliptical, or spherical depending on the source of the starch (Bajaj et al., 2018). Cereal starch, for example, has smaller granule size than potato starch. Even within the same species, there can be more than one granule size and/or shape, and different amylose content leading to different properties within the same species (Bajaj et al., 2018; Guo et al., 2023; Kovrlija et al., 2020; Yu & Christie, 2001). For example, eleven Vietnamese rice starches from a study had amylose content ranging from 0.2% to 28.4% (Huynh et al., 2016).

Starch Gelatinization

One of the ways starch is transformed to overcome its native physico-chemical properties is gelatinization. Most starches for human consumption are usually gelatinized before consumption (Li, 2022). This happens when starch is heated in water which results

in the starch granules swelling up and bursting. This causes the amylose in the granules to leach out of the starch granules, increasing the viscosity of the solution (Jenkins & Donald, 1998; Zhu et al., 2023). Starch gelatinization involves multiple steps which begins with the hydration and swelling up of the amylose due to weaker hydrogen bonds in that region and then moves to the crystalline regions (amylopectin), stressing the crystallites to melt at a lower temperature (Chakraborty et al., 2022; Li, 2022). The amylose content of starches is responsible for its swelling power and gelatinization properties, which also determines the digestibility of starch (Huynh et al., 2016). Starch gelatinization has therefore been manipulated in different ways to produce foods with different textures and nutrition, and with desired rates of digestibility to improve human health (Li, 2022). The nature of gelatinization including Tp and ΔH for a particular starch depends on intrinsic factors such as the molecular structure of the starch, its amylose-amylopectin ratio, size and shape of the starch granules, moisture content, and even their botanical origin (Chakraborty et al., 2022; Li, 2022). The presence of other components in starch like protein, lipids, salts, and sugars can also affect gelatinization (Li, 2022).

Industrial Applications of Starch and Starch Gelatinization

Both food and non-food industries make use of starch gelatinization for different purposes since starch is a big part of our diet and a major raw material. In industries, native starch is usually modified physically, chemically, or in both ways to change its structural and thermal properties for different applications (Apriyanto et al., 2022; Chakraborty et al., 2022). Starch is used in all areas of the food industry such as beverage, canned foods, and baby food industries. It is used in the making of food products like sweets, baked and frozen foods. They are also used as thickening,

stabilizing, emulsifying, adhesion, sealing, encapsulation, and binding agents in both food and non-food industries. In some instances, they are also used to replace fat (Chakraborty et al., 2022). There are therefore many ways starch can be used and modified to meet many unique industrial needs (Apriyanto et al., 2022).

Thermal Properties of Starch Gelatinization

The gelatinization properties of starch are considered important in cooking or processing foods as starch is usually gelatinized or heat-treated in other ways before consumption (Chakraborty et al., 2022; Zhu et al., 2023). A Differential Scanning Calorimeter (DSC) is the instrument commonly used to measure the parameters characterizing the gelatinization of starch (Other techniques such as enzymatic digestion, electrical conductivity, and dough rheology, are also used (Bertrand et al., 2019)). DSC studies the thermal behavior of starch, providing insights into the structure and gelatinization nature of a particular starch (Chakraborty et al., 2022). It usually measures the range of temperatures over which the starch gelatinizes, which are the onset, peak, and conclusion temperatures as well as the ΔH of gelatinization. As the starch gelatinizes, the DSC measures the amount of heat energy required to disrupt hydrogen bonds within the starch granules which is characterized as the ΔH of gelatinization. The peak temperature represents the temperature at the peak of the gelatinization endotherm (Chakraborty et al., 2022). Another parameter is the ΔS of gelatinization, which also provides insight into the structure and stability of the starch and the overall gelatinization process (Kang et al., 2021). The importance of ΔS in explaining thermodynamic processes is often underestimated but it has been used in explaining processes such as ligand binding (Chodera & Mobley, 2013; Peccati & Jiménez-Osés, 2021). ΔH represents

the change in heat while ΔS represents a change in disorder of the system (Chodera & Mobley, 2013).

Enthalpy–Entropy Compensation

EEC is the linear correlation between ΔH and ΔS for a series of similar chemical processes (Gelin et al., 2020; Peccati & Jiménez-Osés, 2021; Sharp, 2001), and is observed in many processes such as such as ligand binding, protein-protein interactions, solution thermodynamics, food chemistry, and in biological systems and solids such as metals and semiconductors (Gelin et al., 2020; M. Guo et al., 2021; Peccati & Jiménez-Osés, 2021; Sharp, 2001). It occurs when differences among similar reactions affect ΔH and ΔS in the same direction and to a similar degree, resulting in a small and negligible change in Gibbs free energy (ΔG) (Peccati & Jiménez-Osés, 2021). This means if a system is modified in any way to improve ΔH, it would be offset by unintended changes in ΔS, or if the system is modified with the goal of reducing ΔS, it will also lead to unintended changes in ΔH (Chodera & Mobley, 2013; Ryde, 2014). There are also instances where there is a linear relationship but ΔH and ΔS change in different directions (Sharp, 2001)**.** This relationship allows us to predict ΔS from ΔH or rate constants at a particular temperature (Guo et al., 2021). EEC is usually demonstrated in a graph where ΔH is plotted against ΔS and fitted with a linear regression model. The slope of this graph which is often near unity is termed the compensation temperature, which could provide some extra-thermodynamic information about the system (Chodera & Mobley, 2013; Sharp, 2001). It is described as the temperature at which ΔH cancel ΔS such that the rate constants are constant (Guo et al., 2021). Since EEC is observed in many different reactions, it is considered a universal thermodynamic phenomenon (Chodera & Mobley,

2013; Cornish-Bowden, 2018; Guo et al., 2021). Due to this universality, its use is limited as it is seen as easier to explain different systems exhibiting this phenomenon based on an occurrence unique to each system (Chodera & Mobley, 2013). However, EEC has been studied in different systems using both experimental and theoretical methods, and has been seen as relevant in understanding, explaining, and predicting many processes including binding affinities, molecular recognition, drug design (Peccati & Jiménez-Osés, 2021; Ryde, 2014) and even in the gelatinization of starch (Kang et al., 2021). These different studies have successfully used EEC to explain different interactions and processes in ways that relate to each system. It has also been suggested that EEC may have evolutionary and functional benefits in maintaining thermodynamic homeostasis that prevents undesirable changes in ΔG (Peccati & Jiménez-Osés, 2021).

Origin of Enthalpy–Entropy Compensation

The origin of EEC is a very controversial subject which has often been debated whether there is a real or physical origin, or it is as a result of experimental and/or statistical artifacts (Chodera & Mobley, 2013; Gelin et al., 2020; Peccati & Jiménez-Osés, 2021). Some suggest it is due to an intrinsic property of a system while most attribute it to an experimental artifact from errors in the determination of ΔH and ΔS values (Peccati & Jiménez-Osés, 2021; Sharp, 2001). Usually, ΔG and ΔH are measured in experiments while ΔS is calculated from ΔG and ΔH, and so the linear EEC plots with high correlation coefficient are often attributed to the already existing relationship between ΔH and ΔS (Sharp, 2001). Many papers have discussed different theories and tests regarding the origin of EEC, one of which is the statistical test derived by Krug et al. (Krug et al., 1976a, 1976b). The harmonic mean of the experimental temperatures is compared to the

slope of the EEC plot, the compensation temperature, at a chosen confidence level. If the harmonic mean falls outside the upper and lower limits of the compensation temperature, the EEC is more likely due to an intrinsic property of the starch than an experimental artifact at the chosen confidence level (Krug et al., 1976a, 1976b; Sharp, 2001).

Chapter III

METHODS

Data Collection

Experimental data on starch gelatinization was sourced from published studies in the PubMed database (https://pubmed.ncbi.nlm.nih.gov/) from 1994 to 2023. The data included the starch source, and the Tp and ΔH of gelatinization for each sample across the studies. A total of 1,886 samples (see appendix) were extracted and analyzed using Python (version 3.11). Exploratory data analysis was performed using Python to examine the distribution of the data, including the distribution of starch sources. The data was also cleaned, and all necessary calculations except the calculation for ΔS were carried out in Python. Additionally, all figures were generated using Python.

Enthalpy–Entropy Compensation

ΔS was calculated in Excel for each sample using Equation (1):

$$\Delta S = \frac{\Delta H}{T_p} \tag{1}$$

Excel was used for this step only as a preliminary calculation before proceeding with the analysis in Python. A linear regression analysis between ΔH and ΔS was performed using Equation (2):

$$\Delta H = T_c \times \Delta S + \beta \tag{2}$$

where T_c, known as the compensation temperature, is the slope of the best-fit line (Chodera & Mobley, 2013; Sharp, 2001), and β is the y-intercept. This linear relationship between ΔH and ΔS is what is known as enthalpy–entropy compensation, EEC. The EEC graph was obtained by plotting ΔH against ΔS for all samples.

Variation in Thermodynamic Parameters

The variability within each thermodynamic parameter was calculated using Equation (3).

$$CV = \frac{s}{m} \tag{3}$$

where CV is the coefficient of variation, and s and m are the standard deviation and the mean of the samples, respectively.

Origin of Enthalpy–Entropy Compensation

Two tests were used to explore the origin of the EEC. The first test is based on a claim made by several authors that when T_c is approximately equal to the harmonic mean of the experimental temperature (T_{hm}), then the compensation between ΔH and ΔS is likely caused by an artifact from the experimental temperature range rather than an intrinsic property of the starch. The reasoning is that T_c represents the compensation between ΔH and ΔS and so if it is approximately equal to T_{hm}, then the compensation is likely temperature dependent. T_c and T_{hm} were both calculated in Python using Equation (4) and Equation (5) respectively.

$$T_c = \frac{d\Delta H}{\mathrm{d}\Delta S} \tag{4}$$

$$T_{hm} = \frac{n}{\sum_{i=1}^{n} \frac{1}{T_i}} \tag{5}$$

where T_i with i=1,…n, is the temperature of the i-th sample, and n is the total number of samples. The second test was derived by Krug et al.(Griessen & Dam, 2021; Krug et al., 1976a, 1976b) using the following interval:

$$[T_c - t\sigma, T_c + t\sigma]$$

where t is the student's t value based on the number of samples, 1894, and a confidence level of 95% and σ is the standard error of T_c. This test is similar to the first test except it is more robust in that it takes into account the standard error of T_c to obtain the upper and lower limits of T_c. If T_{hm} falls outside this interval, the EEC is more likely due to an intrinsic property of the starch than an experimental artifact at the chosen confidence level.

Comparison of Thermodynamic Properties between Starch Sources

To analyze similarities and differences between starch sources in terms of their gelatinization properties, T_c, the standard error of T_c, mean ΔH, mean ΔS, and mean Tp were calculated for each starch source and values were compared to each other. A pairwise z-test was performed to test for statistical differences in T_c between starch sources using Equation (6). An ANOVA test was performed for the other parameters, followed by a post-hoc test using Tukey's HSD test, to identify which pairs of starch sources are significantly different.

$$z = \frac{\left|T_{C_1} - T_{C_2}\right|}{\sqrt{SE_1^2 + SE_2^2}} \tag{6}$$

Chapter IV

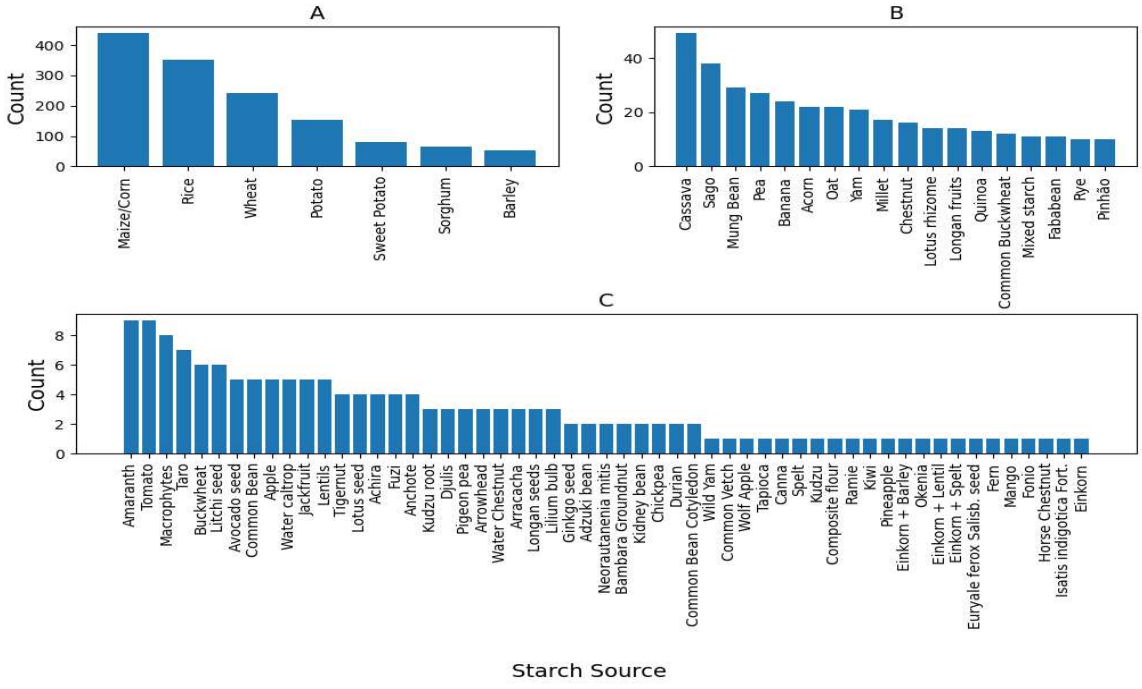
RESULTS

Sample Distribution

The samples spanned eighty different starch sources (Figure 1). Figure 1A shows the most common starch sources in the data with most starches being maize or corn starch while Figure 1C shows the least common starch sources. This reveals how most research on starch focuses on the most consumed starch in the world.

Figure 1

Distribution of Starch Sources in the Collected Data. Starch Sources Occurring (A) At Least 50 Times. (B) Between 10 And 50 Times. (C) Less Than 10 Times

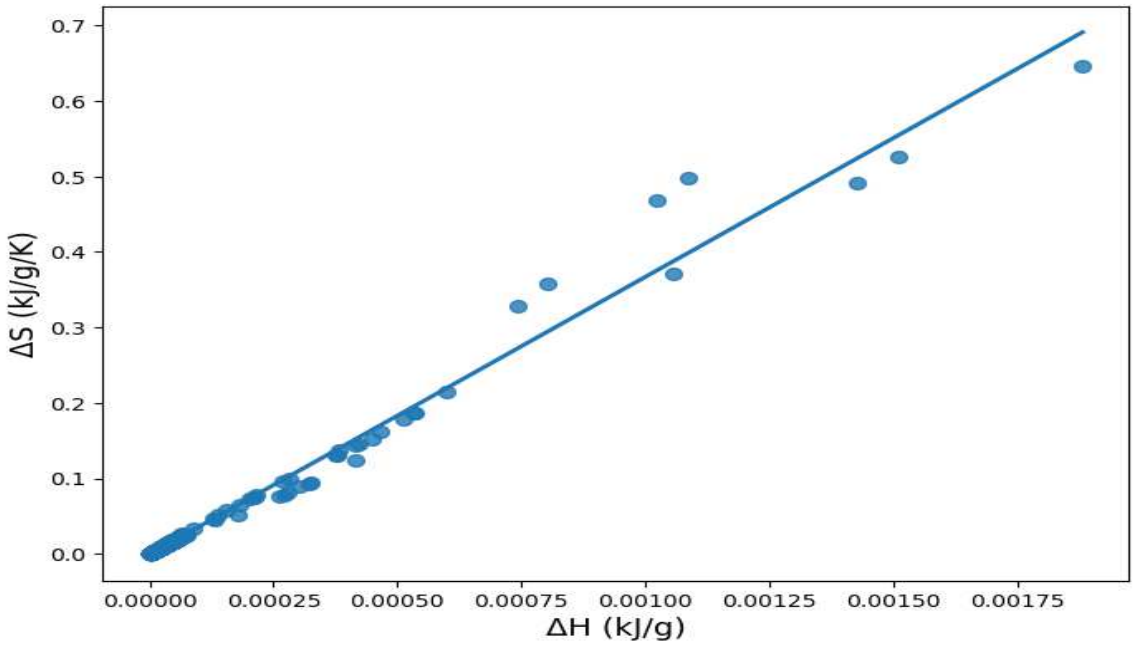


Enthalpy–Entropy Compensation

Figure 2 shows the values of ΔH plotted against ΔS. A linear regression using Equation (3) shows a highly significant relationship between ΔH and ΔS, with the coefficient of determination (R^2) being 0.9833. This indicates EEC is present in the process of starch gelatinization, where as ΔH increases, ΔS also increases to compensate for the effect of the increasing ΔH. As ΔH, which is the amount of heat energy required to break the hydrogen bonds within the starch granules (Chakraborty et al., 2022), increases, there is an increase in disorder, ΔS, within the starch, which results in a lower temperature required for melting the starch (Chakraborty et al., 2022).

Figure 2

Enthalpy–Entropy Compensation Across all Samples

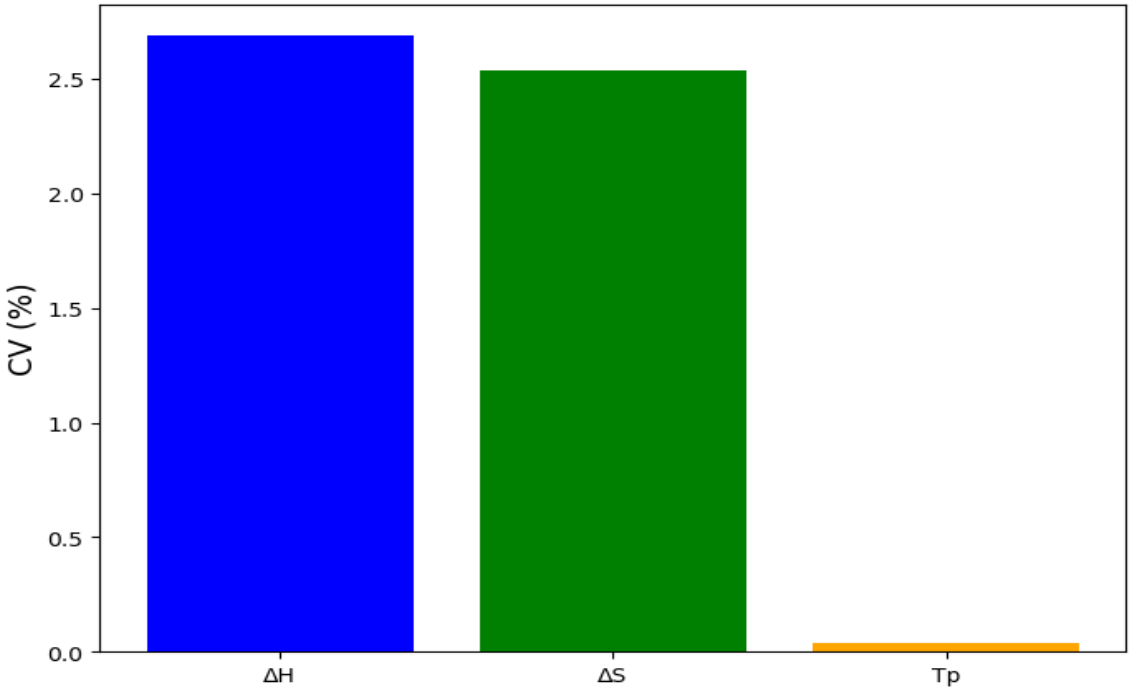


Variation in Thermodynamic Parameters across All Starch Sources

This compensation between Δ*H* and Δ*S* resulting in a lowered *T*p can be seen in Figure 3 where there is a high variation in both Δ*H* and Δ*S* but a very small variation in *T*p. The *CV*s of Δ*H* and Δ*S* are more than 70 times and 60 times larger than that of *T*p.

Figure 3

*Coefficient of Variation of ΔH, ΔS, and T*p *Across all Samples*



Variation within Each Starch Source

To understand the heterogeneity within each starch source in terms of their gelatinization properties, the variation within each starch source for Δ*H*, Δ*S* and *T*p was calculated for the top nine starch sources (Table 1). There is a very high variation (> 30%) in both Δ*H* and Δ*S* for all the nine starch sources, with the highest variation observed in rice (> 200%), indicating there is a high structural heterogeneity between different rice varieties or rice samples with different treatments in terms of gelatinization. There is relatively a very low variation in *T*p for all the samples as a result of the EEC.

Table 1

Coefficient of Variation (CV) in ΔH, ΔS, and Tp for Each Starch Source (%)

Starch Source	Δ*H*	Δ*S*	*T*p
Maize/Corn	118.88	116.83	3.60
Rice	244.56	242.13	2.11
Wheat	52.84	53.13	2.71
Potato	44.30	44.04	1.72
Sweet Potato	42.39	41.57	3.10
Sorghum	31.03	30.79	1.86
Barley	47.75	48.44	2.27
Cassava	59.53	58.24	2.63
Sago	33.99	33.04	2.54

Origin of Enthalpy–Entropy Compensation

Using Equation (4) and Equation (5), the values for T_c and T_{hm} are found to be 367.8 K and 344.54 K respectively. This means the compensation is likely due to an intrinsic property of the starch rather than any temperature dependence of Δ*H* and Δ*S*, as T_c is not approximately equal to T_{hm}. This study also found a very low correlation between Δ*H* and *T*p as well as between Δ*S* and *T*p, with their values being 0.2134 and 0.1547 respectively. This corroborates the result from the first test for the origin of the EEC in starch gelatinization, that it is less likely due to an experimental artifact. The result from the second test also reveals the same thing. T_{hm} falls outside the T_c interval of (365.63, 369.97), which indicates that the EEC is more likely due to an intrinsic property of the starch than an experimental artifact at a 95% confidence level.

Comparison of Thermodynamic Properties between Starch Sources

T_c was also calculated for each starch source; the values of T_c and its standard error for each of the top nine starch sources in the collected data, which also appear to be the most consumed starches in the world (Burrell, 2003; Chakraborty et al., 2022; Zhu et al., 2023), are reported in Table 2. Sweet potato recorded the highest mean ΔH indicating a high thermal stability while barley recorded the lowest mean ΔH. Figure 4 and Figure 5 provide visualizations of the mean ΔH and mean Tp results, allowing for easier comparison of these gelatinization parameters across starch sources. Table 3 shows the results of a pairwise z test for each pair of starch sources in Table 2 using Equation (6). For example, there is a statistically significant difference in T_c and its standard error between rice and wheat ($p < 0.05$), unlike between maize/corn and sweet potato where there is no statistically significant difference in T_c and its standard error between them (p

Table 2

T_c and Mean Values of Thermodynamic Parameters for the Top Nine Starch Sources

Starch source	T_c	Standard error of T_c	Mean ΔH (J/g)	Mean ΔS (J/g/K)	Mean Tp (K)
Maize/Corn	356.37	0.67	11.72	0.03	348.02
Rice	350.21	0.18	10.19	0.03	346.74
Wheat	334.80	0.57	6.54	0.02	338.16
Potato	342.23	1.11	11.67	0.03	339.95
Sweet Potato	355.88	4.26	14.02	0.04	350.06
Sorghum	348.39	1.89	9.26	0.03	345.25
Barley	333.40	1.83	5.96	0.02	340.84
Cassava	353.35	2.48	7.96	0.02	342.91
Sago	358.55	3.89	11.72	0.03	349.08

> 0.05). This indicates the gelatinization of both rice starch and wheat starch follows a unique process while the gelatinization of maize/corn starch and sweet potato starch follows a similar process, as can be seen for other pairs of starch sources in Table 3.

Figure 4

Multiple Comparisons of ΔH Between Starch Sources

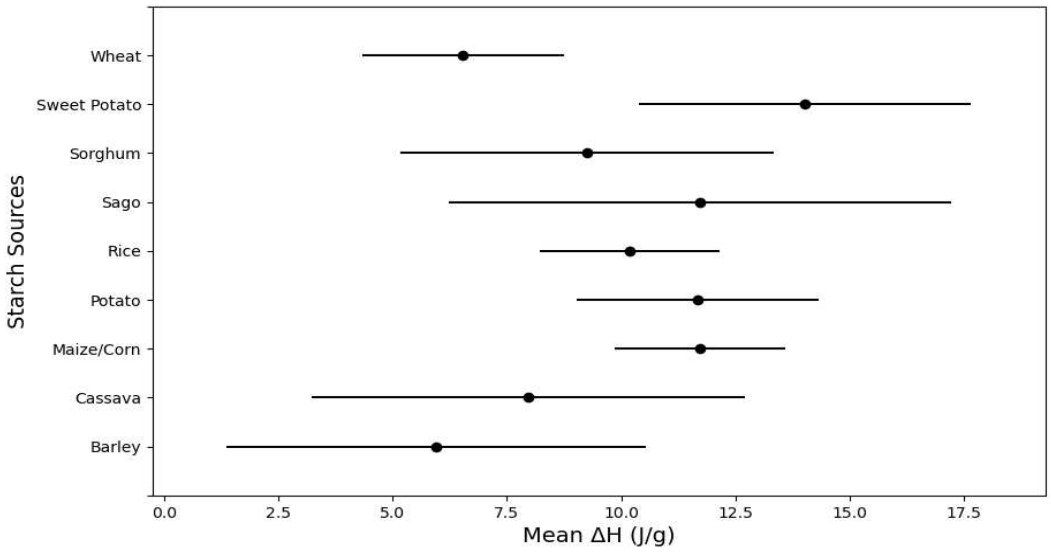


Figure 5

Multiple Comparisons of Tp Between Starch Sources

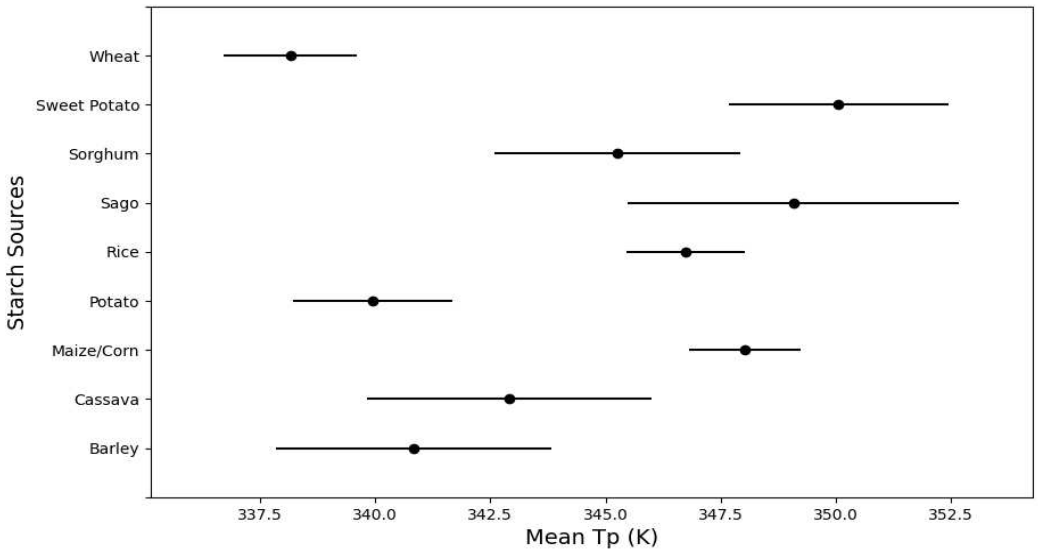


Table 3

Results of a Pairwise z-test between Starch Sources for T_c

	Cassava	Maize/Corn	Potato	Rice	Sago	Sorghum	Sweet Potato	Wheat
Barley	$p < .001$	$p < .001$	0.48	$p < .001$	$p < .001$	$p < .001$	$p < .001$	0.46
Cassava	0	0.24	$p < .001$	0.21	0.26	0.11	0.61	$p < .001$
Maize/Corn	0	0	$p < .001$	$p < .001$	0.58	$p < .001$	0.91	$p < .001$
Potato	0	0	0	$p < .001$	$p < .001$	$p < .001$	$p < .001$	0.89
Rice	0	0	0	0	0.03	0.34	0.18	$p < .001$
Sago	0	0	0	0	0	0.02	0.64	$p < .001$
Sorghum	0	0	0	0	0	0	0.11	$p < .001$
Sweet Potato	0	0	0	0	0	0	0	$p < .001$

This study tested significant differences in ΔH, ΔS, and Tp across the nine starch sources using ANOVA. As shown in Table 4, there are significant differences ($p < .001$) in ΔH, ΔS, and Tp across all the starch sources. To identify which starch sources showed significant differences from others, a post-hoc test using Tukey's HSD test was performed for ΔH (Table 5), ΔS, and Tp (Table 6). The p-value results of the test for ΔS were the same as that of ΔH and are therefore not shown here. Only three pairs of starch sources were found to have significant differences for ΔH. These were between maize/corn and wheat ($p < .001$), sweet potato and wheat ($p = .003$), and potato and wheat ($p = .02$). From our analysis, wheat has a significantly lower enthalpy compared to other starch sources which can also be observed in Figure 4. Maize/corn and sago also have very similar energy and temperature requirements for gelatinization based on their mean ΔH and mean Tp values in Table 2 which can also be seen in Figure 4 and Figure 5 respectively. This similarity is confirmed by the post-hoc test results in Table 5 and Table 6.

Table 4

Results of an ANOVA test between Starch Sources

	F-statistic	p-value
ΔH	4.08	$p < .001$
ΔS	3.86	$p < .001$
Tp	32.45	$p < .001$

Table 5

Results of a Tukey's HSD test between Starch Sources for ΔH

	Cassava	Maize/Corn	Potato	Rice	Sago	Sorghum	Sweet Potato	Wheat
Barley	1.00	0.16	0.27	0.59	0.66	0.96	0.06	1.00
Cassava	0	0.75	0.84	0.99	0.96	1.00	0.36	1.00
Maize/Corn	0	0	1.00	0.88	1.00	0.94	0.94	$p < .001$
Potato	0	0	0	0.98	1.00	0.97	0.97	0.02
Rice	0	0	0	0	1.00	1.00	0.48	0.07
Sago	0	0	0	0	0	1.00	1.00	0.53
Sorghum	0	0	0	0	0	0	0.59	0.93
Sweet Potato	0	0	0	0	0	0	0	0.003

Table 6

Results of a Tukey's HSD test between Starch Sources for Tp

	Cassava	Maize/Corn	Potato	Rice	Sago	Sorghum	Sweet Potato	Wheat
Barley	0.98	$p < .001$	1.00	0.001	0.002	0.25	$p < .001$	0.67
Cassava	0	0.01	0.63	0.18	0.07	0.94	0.002	0.04
Maize/Corn	0	0	$p < .001$	0.64	1.00	0.44	0.73	$p < .001$
Potato	0	0	0	$p < .001$	$p < .001$	0.01	$p < .001$	0.68
Rice	0	0	0	0	0.89	0.97	0.12	$p < .001$
Sago	0	0	0	0	0	0.58	1.00	$p < .001$
Sorghum	0	0	0	0	0	0	0.07	$p < .001$
Sweet Potato	0	0	0	0	0	0	0	$p < .001$

Chapter V

CONCLUSIONS

This study investigated the thermodynamic properties of a wide range of starches and how they differ from one starch source to the other in terms of gelatinization. It also investigated the phenomenon known as enthalpy–entropy compensation, EEC, in starch gelatinization, and the findings indicate the presence of compensation between ΔH and ΔS with a very strong correlation between them. This compensation has improved understanding and prediction of different reactions and processes such as ligand binding, protein-protein interactions, binding affinities and drug design (Peccati & Jiménez-Osés, 2021; Ryde, 2014). In the case of starch gelatinization, it explains the lowered Tp of starch despite a high ΔH, which is as a result of ΔS increasing as ΔH increases to compensate for the effects of the increasing ΔH. This is also observed from the small variation in Tp compared to the very high variation in ΔH and ΔS, both for each individual starch source and across all starch sources. Rice starch had the highest variation (> 200%) in both ΔH and ΔS, indicating there is a high structural heterogeneity in rice. This means different rice starches may have different structural properties like varying granule size and shape, and amylose content, leading to different thermal properties which influence the gelatinization of the starch. In a study of the properties and digestibility of eleven Vietnamese rice starches, varying proportions of amylose content in the different rice starches were reported, ranging from 0.2% to 28.4% (Huynh et al.,

2016). This study also found that the origin of EEC in starch gelatinization is more likely due to an intrinsic property of the starch than to errors arising from an experimental artifact. This conclusion was based on the two tests discussed previously and on the very low correlation found between ΔH and Tp as well as between ΔS and Tp; the origin of EEC is often attributed to the temperature dependence of ΔH and ΔS (Chodera & Mobley, 2013).

To understand how one starch source relates to another in terms of their thermal properties, this study examined the T_c and mean thermodynamic parameters for the most consumed starches and performed a pairwise z test to compare how similar or different they are from each other. The strongest statistical difference in T_c is observed between rice and wheat, indicating the gelatinization process in both starches follows a very unique process while maize/corn and sweet potato appeared to be most similar, indicating maize/corn and sweet potato may have comparable characteristics in terms of structure or amylose and amylopectin contents that results in very similar thermal properties. This also indicates maize/corn and sweet potato can be cooked or processed together to yield the same desired results as when each is processed individually, which can be a way to save resources and time in starch processing industries. Adopting different strategies in industry is inevitable (Apriyanto et al., 2022) to meet the numerous requirements like processing and consumer demands. This similarity in terms of gelatinization was not only observed between maize/corn and potato starches but also for other starches. Among the nine most consumed starches whose thermodynamic properties were compared, sweet potato had the highest mean ΔH with barley having the lowest mean ΔH indicating a high and low thermal stability in sweet potato and barley, respectively. Wheat also had a

significantly lower energy (ΔH) and temperature (Tp) requirements compared with other starch sources like maize/corn, sweet potato, and potato.

Another significant advantage of this study is the wider range of temperature used as a narrow range of temperature can lead to inaccurate results (Chodera & Mobley, 2013). For similar future studies, however, it is recommended that the study either focus on native unmodified starches, or account for how starches with any form of modifications may influence the results. Also, other experimental treatments including DSC conditions used need to be considered in analyzing such data as they may affect the results of the thermal behavior of starch (Yu & Christie, 2001).

REFERENCES

Apriyanto, A., Compart, J., & Fettke, J. (2022). A review of starch, a unique biopolymer – Structure, metabolism and *in planta* modifications. *Plant Science*, *318*, 111223. https://doi.org/10.1016/j.plantsci.2022.111223

Bajaj, R., Singh, N., Kaur, A., & Inouchi, N. (2018). Structural, morphological, functional and digestibility properties of starches from cereals, tubers and legumes: A comparative study. *Journal of Food Science and Technology*, *55*(9), 3799–3808. https://doi.org/10.1007/s13197-018-3342-4

Bertrand, R., Holmes, W., Orgeron, C., McIntyre, C., Hernandez, R., & Revellame, E. D. (2019). Rapid estimation of parameters for gelatinization of waxy corn starch. *Foods*, *8*(11), 556. https://doi.org/10.3390/foods8110556

Burrell, M. M. (2003). Starch: The need for improved quality or quantity—an overview. *Journal of Experimental Botany*, *54*(382), 451–456. https://doi.org/10.1093/jxb/erg049

Chakraborty, I., N, P., Mal, S. S., Paul, U. C., Rahman, Md. H., & Mazumder, N. (2022). An insight into the gelatinization properties influencing the modified starches used in food industry: A review. *Food and Bioprocess Technology*, *15*(6), 1195–1223. https://doi.org/10.1007/s11947-022-02761-z

Chodera, J. D., & Mobley, D. L. (2013). Entropy-enthalpy compensation: Role and ramifications in biomolecular ligand recognition and design. *Annual Review of Biophysics*, *42*, 121–142. https://doi.org/10.1146/annurev-biophys-083012-130318

Chung, H. J., Lim, H. S., & Lim, S. T. (2006). Effect of partial gelatinization and retrogradation on the enzymatic digestion of waxy rice starch. *Journal of Cereal Science*, *43*(3), 353–359. https://doi.org/10.1016/j.jcs.2005.12.001

Cornish-Bowden, A. (2018). Entropy-enthalpy compensation. In G. Roberts & A. Watts (Eds.), *Encyclopedia of Biophysics* (pp. 1–6). Springer. https://doi.org/10.1007/978-3-642-35943-9_10072-1

Gelin, S., Champagne-Ruel, A., & Mousseau, N. (2020). Enthalpy-entropy compensation of atomic diffusion originates from softening of low frequency phonons. *Nature Communications*, *11*(1), 3977. https://doi.org/10.1038/s41467-020-17812-2

Griessen, R., & Dam, B. (2021). Simple accurate verification of enthalpy-entropy compensation and isoequilibrium relationship. *Chemphyschem*, *22*(17), 1774–1784. https://doi.org/10.1002/cphc.202100431

Guo, J., Wang, Z., Qu, L., Hao, D., & Lu, D. (2023). Comparison of the physicochemical properties of starches from maize reciprocal F1 hybrids and their parental lines. *Food Chemistry: X*, *17*, 100561. https://doi.org/10.1016/j.fochx.2023.100561

Guo, M., Zhang, J., Zhang, L., Lee, Y. M., Fukuzumi, S., & Nam, W. (2021). Enthalpy–entropy compensation effect in oxidation reactions by manganese(iv)-oxo porphyrins and nonheme iron(iv)-oxo models. *Journal of the American Chemical Society*, *143*(44), 18559–18570. https://doi.org/10.1021/jacs.1c08198

Huynh, T. D., Shrestha, A. K., & Arcot, J. (2016). Physicochemical properties and digestibility of eleven Vietnamese rice starches with varying amylose contents. *Food & Function*, *7*(8), 3599–3608. https://doi.org/10.1039/C6FO00661B

Jenkins, P. J., & Donald, A. M. (1998). Gelatinisation of starch: A combined SAXS/WAXS/DSC and SANS study. *Carbohydrate Research*, *308*(1), 133–147. https://doi.org/10.1016/S0008-6215(98)00079-2

Kang, J., Green, L., & Hall, K. (2021). Enthalpy-entropy compensation in the gelatinization of cyperus starch. *Turkish Journal of Pharmaceutical Sciences*, *18*(4), 385–387. https://doi.org/10.4274/tjps.galenos.2021.44389

Khrapunov, S. (2018). The enthalpy-entropy compensation phenomenon. Limitations for the use of some basic thermodynamic equations. *Current Protein & Peptide Science*, *19*(11), 1088–1091. https://doi.org/10.2174/1389203719666180521092615

Kovrlija, R., Goubin, E., & Rondeau-Mouro, C. (2020). TD-NMR studies of starches from different botanical origins: Hydrothermal and storage effects. *Food Chemistry*, *308*, 125675. https://doi.org/10.1016/j.foodchem.2019.125675

Krug, R. R., Hunter, W. G., & Grieger, R. A. (1976a). Enthalpy-entropy compensation. 1. Some fundamental statistical problems associated with the analysis of van't Hoff and Arrhenius data. *The Journal of Physical Chemistry*, *80*(21), 2335–2341. https://doi.org/10.1021/j100562a006

Krug, R. R., Hunter, W. G., & Grieger, R. A. (1976b). Enthalpy-entropy compensation. 2. Separation of the chemical from the statistical effect. *The Journal of Physical Chemistry*, *80*(21), 2341–2351. https://doi.org/10.1021/j100562a007

Li, C. (2022). Recent progress in understanding starch gelatinization—An important property determining food quality. *Carbohydrate Polymers*, *293*, 119735. https://doi.org/10.1016/j.carbpol.2022.119735

Li, C., & Gong, B. (2020). Insights into chain-length distributions of amylopectin and amylose molecules on the gelatinization property of rice starches. *International Journal of Biological Macromolecules*, *155*, 721–729. https://doi.org/10.1016/j.ijbiomac.2020.04.006

Li, S., Wang, Z., Feng, D., Pan, Y., Li, E., Wang, J., & Li, C. (2024). The important role of starch fine molecular structures in starch gelatinization property with addition of sugars/sugar alcohols. *Carbohydrate Polymers*, *330*, 121785. https://doi.org/10.1016/j.carbpol.2024.121785

Liu, P., Xie, F., Li, M., Liu, X., Yu, L., Halley, P. J., & Chen, L. (2011). Phase transitions of maize starches with different amylose contents in glycerol–water systems. *Carbohydrate Polymers*, *85*(1), 180–187. https://doi.org/10.1016/j.carbpol.2011.02.006

Peccati, F., & Jiménez-Osés, G. (2021). Enthalpy–entropy compensation in biomolecular recognition: A computational perspective. *ACS Omega*, *6*(17), 11122–11130. https://doi.org/10.1021/acsomega.1c00485

Ratnayake, W. S., & Jackson, D. S. (2009). Starch gelatinization. *Advances in Food and Nutrition Research*, *55*, 221–268. https://doi.org/10.1016/S1043-4526(08)00405-1

Ryde, U. (2014). A fundamental view of enthalpy–entropy compensation. *MedChemComm*, *5*(9), 1324–1336. https://doi.org/10.1039/C4MD00057A

Sharp, K. (2001). Entropy—enthalpy compensation: Fact or artifact? *Protein Science : A Publication of the Protein Society*, *10*(3), 661–667.

Shiotsubo, T., & Takahashi, K. (1984). Differential thermal analysis of potato starch gelatinization. *Agricultural and Biological Chemistry*, *48*(1), 9–17. https://doi.org/10.1080/00021369.1984.10866088

Starikov, E. B., & Nordén, B. (2007). Enthalpy−entropy compensation: a phantom or something useful? *The Journal of Physical Chemistry B*, *111*(51), 14431–14435. https://doi.org/10.1021/jp075784i

Wang, S., Li, C., Zhang, X., Copeland, L., & Wang, S. (2016). Retrogradation enthalpy does not always reflect the retrogradation behavior of gelatinized starch. *Scientific Reports*, *6*(1), 20965. https://doi.org/10.1038/srep20965

Yu, L., & Christie, G. (2001). Measurement of starch thermal transitions using differential scanning calorimetry. *Carbohydrate Polymers*, *46*(2), 179–184. https://doi.org/10.1016/S0144-8617(00)00301-5

Zhang, D., Mu, T., & Sun, H. (2017). Comparative study of the effect of starches from five different sources on the rheological properties of gluten-free model doughs. *Carbohydrate Polymers*, *176*, 345–355. https://doi.org/10.1016/j.carbpol.2017.08.025

Zhu, J., Bai, Y., & Gilbert, R. G. (2023). Effects of the molecular structure of starch in foods on human health. *Foods*, *12*(11), 2263. https://doi.org/10.3390/foods12112263

APPENDIX

Raw Data

The following data is the raw data collected from published articles in the PubMed database. The PMID column contains the PubMed Identifiers for each article. The data also contains experimental conditions used for the samples.

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
8016260	Potato	10	313.15	373.15	340.04	16.61	0.05
8016260	Potato	10	313.15	373.15	337.92	15.23	0.05
8016260	Potato	10	313.15	373.15	337.24	16.07	0.05
8016260	Potato	10	313.15	373.15	332.61	13.31	0.04
8016260	Potato	10	313.15	373.15	334.56	11.80	0.04
9201748	Common Bean Cotyledon	5	298.15	383.15	359.15	2.09	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
9201748	Common Bean Cotyledon	5	298.15	383.15	360.15	2.16	0.01
9505244	Wheat	8.1	289.15	393.15	339.85	2.00	0.01
9505244	Wheat	8.1	289.15	393.15	338.55	2.00	0.01
9505244	Wheat	8.1	289.15	393.15	337.85	2.20	0.01
9505244	Wheat	8.1	289.15	393.15	339.25	1.70	0.01
9505244	Wheat	8.1	289.15	393.15	338.75	1.70	0.01
9505244	Wheat	8.1	289.15	393.15	338.25	2.00	0.01
10552658	Sago	0.5	273.15	372.15	343.25	16.50	0.05
10552658	Sago	0.5	273.15	372.15	353.85	16.30	0.05
10552658	Sago	0.5	273.15	372.15	352.95	16.30	0.05
10552658	Sago	0.5	273.15	372.15	351.85	16.70	0.05

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
10552658	Sago	0.5	273.15	372.15	351.15	14.80	0.04
10552658	Sago	0.5	273.15	372.15	349.85	16.60	0.05
10552658	Sago	0.5	273.15	372.15	348.65	14.90	0.04
10552658	Sago	0.5	273.15	372.15	346.85	12.30	0.04
10552658	Sago	0.5	273.15	372.15	337.65	10.70	0.03
10552658	Sago	0.5	273.15	372.15	337.05	9.50	0.03
10552658	Sago	0.5	273.15	372.15	334.05	8.60	0.03
10552658	Sago	0.5	273.15	372.15	333.35	8.10	0.02
10552658	Sago	0.5	273.15	372.15	329.65	8.50	0.03
10552658	Sago	0.5	273.15	372.15	328.75	8.40	0.03
10552658	Sago	0.5	273.15	372.15	347.55	14.20	0.04
10552658	Sago	0.5	273.15	372.15	360.25	14.80	0.04
10552658	Sago	0.5	273.15	372.15	354.55	15.80	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
10552658	Sago	0.5	273.15	372.15	366.65	17.40	0.05
10552658	Sago	0.5	273.15	372.15	365.85	16.50	0.05
10898648	Sweet Potato	10			344.10	25.63	0.07
10898648	Sweet Potato	10			335.95	24.94	0.07
10898648	Sweet Potato	10			337.47	23.97	0.07
10898648	Sweet Potato	10			345.01	24.13	0.07
10898648	Sweet Potato	10			343.04	22.61	0.07
10898648	Sweet Potato	10			344.55	25.10	0.07
11234919	Wheat	5	303.15	393.15	342.05	7.80	0.02
11234919	Wheat	5	303.15	393.15	341.75	7.20	0.02
11234919	Wheat	5	303.15	393.15	344.75	6.10	0.02
11234919	Wheat	5	303.15	393.15	345.25	6.10	0.02
11234919	Wheat	5	303.15	393.15	344.95	5.30	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
11234919	Wheat	5	303.15	393.15	342.55	6.70	0.02
11234919	Wheat	5	303.15	393.15	344.45	6.60	0.02
11234919	Wheat	5	303.15	393.15	344.65	6.00	0.02
11234919	Wheat	5	303.15	393.15	345.85	5.00	0.01
11600008	Wheat	5	303.15	398.15	342.05	7.80	0.02
11600008	Wheat	5	303.15	398.15	345.15	6.00	0.02
11600008	Wheat	5	303.15	398.15	346.55	6.60	0.02
11600008	Wheat	5	303.15	398.15	345.25	7.60	0.02
11600008	Wheat	5	303.15	398.15	346.65	3.00	0.01
11600008	Wheat	5	303.15	398.15	347.05	3.50	0.01
11600008	Wheat	5	303.15	398.15	347.15	4.70	0.01
11600008	Wheat	5	303.15	398.15	349.25	2.50	0.01
11600008	Wheat	5	303.15	398.15	348.75	2.60	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
11600008	Wheat	5	303.15	398.15	348.15	5.40	0.02
12582713	Rice	10	303.15	383.15	345.05	6.43	0.02
12582713	Rice	10	303.15	383.15	347.75	6.39	0.02
12582713	Rice	10	303.15	383.15	347.45	6.97	0.02
12582713	Rice	10	303.15	383.15	337.55	5.72	0.02
12582713	Rice	10	303.15	383.15	341.65	7.05	0.02
12582713	Rice	10	303.15	383.15	350.05	8.53	0.02
12582713	Rice	10	303.15	383.15	347.85	7.53	0.02
12582713	Rice	10	303.15	383.15	347.65	7.31	0.02
12582713	Rice	10	303.15	383.15	341.65	6.07	0.02
12582713	Rice	10	303.15	383.15	341.15	7.15	0.02
12582713	Rice	10	303.15	383.15	347.95	7.20	0.02
12582713	Rice	10	303.15	383.15	346.85	6.78	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
12670162	Sweet Potato	5	293.15	453.15	343.85	10.50	0.03
12670162	Sweet Potato	5	293.15	453.15	344.65	11.00	0.03
12670171	Rice	10	303.15	383.15	348.35	11.40	0.03
12670171	Rice	10	303.15	383.15	338.05	8.50	0.03
12670171	Rice	10	303.15	383.15	337.45	7.60	0.02
12670171	Rice	10	303.15	383.15	336.35	6.70	0.02
12670171	Rice	10	303.15	383.15	335.85	6.70	0.02
12670171	Rice	10	303.15	383.15	335.45	6.40	0.02
12670171	Wheat	10	303.15	383.15	335.95	10.80	0.03
12670171	Wheat	10	303.15	383.15	336.45	11.20	0.03
12670171	Wheat	10	303.15	383.15	335.55	9.30	0.03
12670171	Wheat	10	303.15	383.15	335.25	8.30	0.02
12670171	Wheat	10	303.15	383.15	335.25	8.70	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
12670171	Potato	10	303.15	383.15	338.85	17.20	0.05
12670171	Potato	10	303.15	383.15	340.35	16.60	0.05
12670171	Potato	10	303.15	383.15	340.05	15.20	0.04
12670171	Potato	10	303.15	383.15	339.85	15.30	0.05
12670171	Potato	10	303.15	383.15	340.25	15.00	0.04
12670171	Potato	10	303.15	383.15	340.05	14.30	0.04
15366857	Rice	10	303.15	383.15	348.05	8.60	0.02
15366857	Rice	10	303.15	383.15	349.15	9.30	0.03
15366857	Rice	10	303.15	383.15	351.85	9.34	0.03
15366857	Rice	10	303.15	383.15	351.65	9.10	0.03
15366857	Rice	10	303.15	383.15	341.25	8.00	0.02
15366857	Rice	10	303.15	383.15	352.15	11.10	0.03
15366857	Rice	10	303.15	383.15	351.05	11.30	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
15366857	Rice	10	303.15	383.15	340.45	8.40	0.02
15686392	Banana	10	273.15	403.15	350.75	23.40	0.07
15686392	Mango	10	273.15	403.15	346.95	21.20	0.06
15686392	Okenia	10	273.15	403.15	344.35	15.00	0.04
16218673	Rice	5	283.15	413.15	340.25	15.70	0.05
16218673	Rice	5	283.15	413.15	337.35	12.80	0.04
16218673	Rice	5	283.15	413.15	337.55	12.40	0.04
16218673	Rice	5	283.15	413.15	336.85	10.60	0.03
16366714	Apple	1	298.15	383.15	330.55	3.60	0.01
16366714	Apple	1	298.15	383.15	332.05	3.60	0.01
16366714	Apple	1	298.15	383.15	330.35	4.20	0.01
16366714	Apple	1	298.15	383.15	330.25	3.70	0.01
16366714	Apple	1	298.15	383.15	332.25	3.30	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
16417315	Rice	10	303.15	383.15	337.79	3.49	0.01
16417315	Rice	10	303.15	383.15	345.17	7.12	0.02
16417315	Rice	10	303.15	383.15	350.75	9.36	0.03
16756352	Maize/Corn	1	298.15	373.15	336.75	1.10	0.00
16756352	Maize/Corn	1	298.15	373.15	338.45	0.60	0.00
16756352	Maize/Corn	1	298.15	373.15	339.05	5.50	0.02
16756352	Maize/Corn	1	298.15	373.15	339.45	2.90	0.01
16756352	Maize/Corn	1	298.15	373.15	339.45	7.80	0.02
16756352	Maize/Corn	1	298.15	373.15	340.35	8.60	0.03
16756352	Maize/Corn	1	298.15	373.15	339.95	10.40	0.03
16756352	Maize/Corn	1	298.15	373.15	340.65	7.30	0.02
16756352	Maize/Corn	3	298.15	373.15	338.15	1.10	0.00
16756352	Maize/Corn	3	298.15	373.15	340.25	0.70	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
16756352	Maize/Corn	3	298.15	373.15	340.45	10.70	0.03
16756352	Maize/Corn	3	298.15	373.15	341.65	4.70	0.01
16756352	Maize/Corn	3	298.15	373.15	340.55	9.20	0.03
16756352	Maize/Corn	3	298.15	373.15	341.95	9.50	0.03
16756352	Maize/Corn	3	298.15	373.15	341.05	12.60	0.04
16756352	Maize/Corn	3	298.15	373.15	342.35	7.50	0.02
16756352	Maize/Corn	5	298.15	373.15	339.05	1.20	0.00
16756352	Maize/Corn	5	298.15	373.15	340.35	0.50	0.00
16756352	Maize/Corn	5	298.15	373.15	340.95	10.10	0.03
16756352	Maize/Corn	5	298.15	373.15	342.45	5.30	0.02
16756352	Maize/Corn	5	298.15	373.15	341.25	10.20	0.03
16756352	Maize/Corn	5	298.15	373.15	342.95	10.80	0.03
16756352	Maize/Corn	5	298.15	373.15	342.45	8.60	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
16756352	Maize/Corn	5	298.15	373.15	342.75	9.70	0.03
16756352	Maize/Corn	7	298.15	373.15	340.25	1.40	0.00
16756352	Maize/Corn	7	298.15	373.15	342.45	0.70	0.00
16756352	Maize/Corn	7	298.15	373.15	342.05	10.40	0.03
16756352	Maize/Corn	7	298.15	373.15	343.95	7.40	0.02
16756352	Maize/Corn	7	298.15	373.15	342.15	11.50	0.03
16756352	Maize/Corn	7	298.15	373.15	343.75	10.50	0.03
16756352	Maize/Corn	7	298.15	373.15	342.15	10.00	0.03
16756352	Maize/Corn	7	298.15	373.15	344.25	8.70	0.03
16756352	Maize/Corn	10	298.15	373.15	342.25	1.80	0.01
16756352	Maize/Corn	10	298.15	373.15	343.55	0.80	0.00
16756352	Maize/Corn	10	298.15	373.15	343.15	9.60	0.03
16756352	Maize/Corn	10	298.15	373.15	345.05	8.50	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
16756352	Maize/Corn	10	298.15	373.15	343.25	10.90	0.03
16756352	Maize/Corn	10	298.15	373.15	345.15	11.20	0.03
16756352	Maize/Corn	10	298.15	373.15	343.25	9.50	0.03
16756352	Maize/Corn	10	298.15	373.15	345.25	9.90	0.03
16756352	Maize/Corn	15	298.15	373.15	343.75	0.70	0.00
16756352	Maize/Corn	15	298.15	373.15	344.95	0.80	0.00
16756352	Maize/Corn	15	298.15	373.15	346.55	7.00	0.02
16756352	Maize/Corn	15	298.15	373.15	347.15	8.90	0.03
16756352	Maize/Corn	15	298.15	373.15	346.35	10.50	0.03
16756352	Maize/Corn	15	298.15	373.15	347.55	9.80	0.03
16756352	Maize/Corn	15	298.15	373.15	344.95	9.60	0.03
16756352	Maize/Corn	15	298.15	373.15	347.45	8.90	0.03
16756352	Maize/Corn	1	298.15	373.15	342.75	5.60	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
16756352	Maize/Corn	1	298.15	373.15	343.55	9.70	0.03
16756352	Maize/Corn	1	298.15	373.15	343.55	12.20	0.04
16756352	Maize/Corn	1	298.15	373.15	343.85	11.10	0.03
16756352	Maize/Corn	1	298.15	373.15	343.55	10.50	0.03
16756352	Maize/Corn	1	298.15	373.15	344.25	10.90	0.03
16756352	Maize/Corn	3	298.15	373.15	343.75	9.90	0.03
16756352	Maize/Corn	3	298.15	373.15	345.05	10.10	0.03
16756352	Maize/Corn	3	298.15	373.15	344.75	12.50	0.04
16756352	Maize/Corn	3	298.15	373.15	345.45	11.20	0.03
16756352	Maize/Corn	3	298.15	373.15	344.55	11.40	0.03
16756352	Maize/Corn	3	298.15	373.15	345.95	12.70	0.04
16756352	Maize/Corn	5	298.15	373.15	344.95	11.20	0.03
16756352	Maize/Corn	5	298.15	373.15	346.15	12.10	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
16756352	Maize/Corn	5	298.15	373.15	345.45	12.50	0.04
16756352	Maize/Corn	5	298.15	373.15	346.15	11.80	0.03
16756352	Maize/Corn	5	298.15	373.15	345.15	15.00	0.04
16756352	Maize/Corn	5	298.15	373.15	346.15	12.80	0.04
16756352	Maize/Corn	7	298.15	373.15	346.15	10.80	0.03
16756352	Maize/Corn	7	298.15	373.15	346.85	10.20	0.03
16756352	Maize/Corn	7	298.15	373.15	346.25	13.00	0.04
16756352	Maize/Corn	7	298.15	373.15	346.95	13.20	0.04
16756352	Maize/Corn	7	298.15	373.15	346.25	12.10	0.03
16756352	Maize/Corn	7	298.15	373.15	346.95	14.00	0.04
16756352	Maize/Corn	10	298.15	373.15	346.65	12.00	0.03
16756352	Maize/Corn	10	298.15	373.15	347.65	11.50	0.03
16756352	Maize/Corn	10	298.15	373.15	347.15	13.00	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
16756352	Maize/Corn	10	298.15	373.15	348.15	13.90	0.04
16756352	Maize/Corn	10	298.15	373.15	348.05	12.00	0.03
16756352	Maize/Corn	10	298.15	373.15	348.65	11.90	0.03
16756352	Maize/Corn	15	298.15	373.15	349.65	7.60	0.02
16756352	Maize/Corn	15	298.15	373.15	349.25	8.70	0.02
16756352	Maize/Corn	15	298.15	373.15	349.35	12.50	0.04
16756352	Maize/Corn	15	298.15	373.15	350.95	11.50	0.03
16756352	Maize/Corn	15	298.15	373.15	349.95	13.20	0.04
16756352	Maize/Corn	15	298.15	373.15	349.75	12.10	0.03
17995877	Rice	2		373.15	346.86	8.71	0.03
17995877	Rice	2		373.15	349.83	0.54	0.00
17995877	Rice	2		373.15	350.77	0.14	0.00
17995877	Rice	2		373.15	350.54	0.41	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
17995877	Rice	2		373.15	350.67	0.13	0.00
17995877	Rice	2		373.15	351.91	0.10	0.00
17995877	Rice	2		373.15	350.68	0.20	0.00
17995877	Rice	2		373.15	348.80	5.72	0.02
17995877	Rice	2		373.15	352.33	1.42	0.00
17995877	Rice	2		373.15	350.41	2.71	0.01
17995877	Rice	2		373.15	352.43	1.45	0.00
17995877	Rice	2		373.15	348.45	4.58	0.01
17995877	Rice	2		373.15	354.24	0.69	0.00
17995877	Rice	2		373.15	348.17	5.82	0.02
17995877	Rice	2		373.15	339.58	4.94	0.01
17995877	Rice	2		373.15	344.97	0.72	0.00
17995877	Rice	2		373.15	341.91	1.88	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
17995877	Rice	2		373.15	344.55	0.62	0.00
17995877	Rice	2		373.15	341.70	2.28	0.01
17995877	Rice	2		373.15	345.95	0.38	0.00
17995877	Rice	2		373.15	341.12	2.88	0.01
17995877	Rice	2		373.15	352.85	1.23	0.00
17995877	Rice	2		373.15	355.66	0.29	0.00
17995877	Rice	2		373.15	352.95	0.37	0.00
17995877	Rice	2		373.15	353.47	0.43	0.00
17995877	Rice	2		373.15	352.88	0.37	0.00
17995877	Rice	2		373.15	354.99	0.05	0.00
17995877	Rice	2		373.15	352.97	0.28	0.00
18034706	Mung Bean	10	298.15	393.15	337.05	12.46	0.04
18034706	Mung Bean	10	298.15	393.15	339.65	11.75	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
18034706	Mung Bean	10	298.15	393.15	336.75	11.56	0.03
18034706	Mung Bean	10	298.15	393.15	339.55	13.15	0.04
18034706	Mung Bean	10	298.15	393.15	334.35	12.83	0.04
18205307	Rice	10	280.15	400.15	354.35	19.20	0.05
18205307	Rice	10	280.15	400.15	357.75	18.00	0.05
18205307	Rice	10	280.15	400.15	359.05	18.80	0.05
18205307	Rice	10	280.15	400.15	359.65	18.80	0.05
18205307	Rice	10	280.15	400.15	361.15	19.60	0.05
18205307	Rice	10	280.15	400.15	363.15	19.60	0.05
18205307	Rice	10	280.15	400.15	359.65	18.80	0.05
18205307	Rice	10	280.15	400.15	360.15	12.50	0.03
18205307	Rice	10	280.15	400.15	361.75	10.90	0.03
18205307	Rice	10	280.15	400.15	362.55	9.60	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
18205307	Rice	10	280.15	400.15	363.45	9.20	0.03
18205307	Rice	10	280.15	400.15	364.95	9.20	0.03
18205307	Rice	10	280.15	400.15	360.25	2.50	0.01
18205307	Rice	10	280.15	400.15	361.65	2.50	0.01
18205307	Rice	10	280.15	400.15	362.75	2.50	0.01
18205307	Wheat	10	280.15	400.15	336.35	10.00	0.03
18205307	Wheat	10	280.15	400.15	340.15	8.80	0.03
18205307	Wheat	10	280.15	400.15	342.55	8.80	0.03
18205307	Wheat	10	280.15	400.15	339.15	9.20	0.03
18205307	Wheat	10	280.15	400.15	341.15	6.70	0.02
18205307	Wheat	10	280.15	400.15	343.15	3.80	0.01
18298728	Maize/Corn	10	298.15	373.15	347.66	1.83	0.01
18298728	Maize/Corn	10	298.15	373.15	346.97	1.70	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
18298728	Maize/Corn	10	298.15	373.15	347.22	1.64	0.00
18298728	Maize/Corn	10	298.15	373.15	346.83	1.61	0.00
18298728	Maize/Corn	10	298.15	373.15	346.78	1.59	0.00
18298728	Maize/Corn	10	298.15	373.15	346.63	1.71	0.00
18298728	Maize/Corn	10	298.15	373.15	348.02	1.76	0.01
18298728	Maize/Corn	10	298.15	373.15	347.42	2.20	0.01
18298728	Maize/Corn	10	298.15	373.15	347.49	1.44	0.00
18298728	Maize/Corn	10	298.15	373.15	347.72	1.54	0.00
18298728	Maize/Corn	10	298.15	373.15	348.03	2.16	0.01
18298728	Maize/Corn	10	298.15	373.15	347.50	1.71	0.00
18298728	Maize/Corn	10	298.15	373.15	347.58	1.87	0.01
18298728	Maize/Corn	10	298.15	373.15	347.54	1.56	0.00
18298728	Maize/Corn	10	298.15	373.15	347.22	2.43	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
18298728	Maize/Corn	10	298.15	373.15	347.46	1.74	0.01
18298728	Maize/Corn	10	298.15	373.15	347.43	1.97	0.01
18298728	Maize/Corn	10	298.15	373.15	347.03	2.03	0.01
18387093	Maize/Corn	5	303.15	393.15	343.85	10.10	0.03
18387093	Maize/Corn	5	303.15	393.15	354.15	7.50	0.02
18387093	Maize/Corn	5	303.15	393.15	353.35	6.90	0.02
18387093	Maize/Corn	5	303.15	393.15	354.35	6.90	0.02
18387093	Maize/Corn	5	303.15	393.15	354.75	6.80	0.02
19154167	Maize/Corn	5	303.15	413.15	343.75	13.50	0.04
19154167	Maize/Corn	5	303.15	413.15	352.95	4.40	0.01
19154167	Maize/Corn	5	303.15	413.15	352.95	4.40	0.01
19154167	Maize/Corn	5	303.15	413.15	353.25	4.50	0.01
19154167	Maize/Corn	5	303.15	413.15	353.45	4.30	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
19154167	Maize/Corn	5	303.15	413.15	353.25	4.50	0.01
19154167	Maize/Corn	5	303.15	413.15	352.95	4.00	0.01
19154167	Maize/Corn	5	303.15	413.15	343.05	11.90	0.03
19154167	Maize/Corn	5	303.15	413.15	350.55	3.70	0.01
19154167	Maize/Corn	5	303.15	413.15	349.35	3.40	0.01
19154167	Maize/Corn	5	303.15	413.15	350.55	4.00	0.01
19154167	Maize/Corn	5	303.15	413.15	349.75	3.40	0.01
19154167	Maize/Corn	5	303.15	413.15	350.45	3.80	0.01
19154167	Maize/Corn	5	303.15	413.15	350.35	3.20	0.01
19154167	Wheat	5	303.15	413.15	335.55	5.80	0.02
19154167	Wheat	5	303.15	413.15	350.35	4.30	0.01
19154167	Wheat	5	303.15	413.15	349.75	4.10	0.01
19154167	Wheat	5	303.15	413.15	350.55	4.30	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
19154167	Wheat	5	303.15	413.15	350.15	4.10	0.01
19154167	Wheat	5	303.15	413.15	351.05	4.30	0.01
19154167	Wheat	5	303.15	413.15	350.45	4.20	0.01
19199605	Potato	10	298.15	373.15	338.95	19.50	0.06
19199605	Potato	10	298.15	373.15	338.95	19.50	0.06
19199605	Potato	10	298.15	373.15	340.85	19.00	0.06
19199605	Canna	10	298.15	373.15	340.85	19.10	0.06
19199605	Fern	10	298.15	373.15	338.95	16.30	0.05
19199605	Kudzu	10	298.15	373.15	344.45	14.40	0.04
19256560	Maize/Corn	10	298.15	453.15	349.85	12.80	0.04
19256560	Maize/Corn	10	298.15	453.15	344.55	16.20	0.05
19256560	Maize/Corn	10	298.15	453.15	347.95	13.30	0.04
19256560	Maize/Corn	10	298.15	453.15	345.35	12.10	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
19256560	Maize/Corn	10	298.15	453.15	343.65	12.00	0.03
19646027	Maize/Corn	10	278.15	453.15	346.05	11.60	0.03
19646027	Maize/Corn	10	278.15	453.15	345.65	11.40	0.03
19646027	Maize/Corn	10	278.15	453.15	345.65	11.20	0.03
19646027	Maize/Corn	10	278.15	453.15	343.25	11.90	0.03
19646027	Maize/Corn	10	278.15	453.15	345.35	12.90	0.04
19646027	Maize/Corn	10	278.15	453.15	345.35	12.60	0.04
19646027	Maize/Corn	10	278.15	453.15	345.65	11.20	0.03
20038101	Tomato	10	303.15	358.15	339.95	16.50	0.05
20038101	Tomato	10	303.15	358.15	340.35	15.00	0.04
20038101	Tomato	10	303.15	358.15	337.55	15.20	0.05
20038101	Tomato	10	303.15	358.15	337.55	14.90	0.04
20038101	Tomato	10	303.15	358.15	336.55	14.80	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
20038101	Tomato	10	303.15	358.15	335.85	16.70	0.05
20038101	Tomato	10	303.15	358.15	335.95	17.20	0.05
20038101	Tomato	10	303.15	358.15	334.55	15.70	0.05
20038101	Tomato	10	303.15	358.15	334.35	15.30	0.05
20043631	Wheat	10	313.15	383.15	334.75	8.00	0.02
20043631	Wheat	10	313.15	383.15	334.75	8.90	0.03
20043631	Wheat	10	313.15	383.15	335.05	10.20	0.03
20043631	Wheat	10	313.15	383.15	334.95	8.20	0.02
20043631	Wheat	10	313.15	383.15	334.05	8.20	0.02
20043631	Wheat	10	313.15	383.15	335.25	10.40	0.03
20043631	Wheat	10	313.15	383.15	334.45	8.00	0.02
20043631	Wheat	10	313.15	383.15	334.05	8.70	0.03
20043631	Wheat	10	313.15	383.15	334.55	9.30	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
20043631	Wheat	10	313.15	383.15	334.75	10.70	0.03
20043631	Wheat	10	313.15	383.15	333.75	8.90	0.03
20043631	Wheat	10	313.15	383.15	334.25	10.80	0.03
20043631	Wheat	10	313.15	383.15	334.75	10.20	0.03
20043631	Wheat	10	313.15	383.15	334.55	8.40	0.03
20043631	Wheat	10	313.15	383.15	334.05	9.80	0.03
20043631	Wheat	10	313.15	383.15	333.95	8.70	0.03
20043631	Wheat	10	313.15	383.15	334.55	10.10	0.03
20043631	Wheat	10	313.15	383.15	334.65	9.20	0.03
20550134	Maize/Corn	10	283.15	453.15	349.75	16.90	0.05
20550134	Maize/Corn	10	283.15	453.15	351.65	12.30	0.03
20550134	Maize/Corn	10	283.15	453.15	352.65	14.20	0.04
20550134	Maize/Corn	10	283.15	453.15	353.35	11.30	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
20550134	Maize/Corn	10	283.15	453.15	354.15	11.80	0.03
21152287	Sorghum	10	298.15	373.15	351.21	2.83	0.01
21152287	Sorghum	10	298.15	373.15	324.59	2.30	0.01
21152287	Sorghum	10	298.15	373.15	322.36	2.36	0.01
21152287	Sorghum	10	298.15	373.15	320.37	2.06	0.01
20687547	Barley	10	278.15	453.15	337.35	9.60	0.03
20687547	Barley	10	278.15	453.15	337.75	9.10	0.03
20687547	Barley	10	278.15	453.15	338.95	5.70	0.02
20687547	Barley	10	278.15	453.15	344.15	3.90	0.01
20687547	Barley	10	278.15	453.15	345.75	2.90	0.01
20687547	Barley	10	278.15	453.15	347.55	2.20	0.01
20687547	Barley	10	278.15	453.15	349.05	1.60	0.00
20687547	Barley	10	278.15	453.15	349.65	0.70	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
20687547	Barley	10	278.15	453.15	349.55	1.30	0.00
20687547	Barley	10	278.15	453.15	341.15	8.20	0.02
20687547	Barley	10	278.15	453.15	340.65	5.20	0.02
20687547	Barley	10	278.15	453.15	342.35	5.20	0.02
20687547	Barley	10	278.15	453.15	344.05	2.90	0.01
20687547	Barley	10	278.15	453.15	346.65	5.00	0.01
21062021	Maize/Corn	10	283.15	383.15	347.74	13.21	0.04
21062021	Maize/Corn	10	283.15	383.15	348.86	13.62	0.04
21062021	Maize/Corn	10	283.15	383.15	348.46	11.37	0.03
21062021	Maize/Corn	10	283.15	383.15	349.17	10.91	0.03
21062021	Maize/Corn	10	283.15	383.15	349.03	10.54	0.03
21062021	Maize/Corn	10	283.15	383.15	347.97	12.28	0.04
21062021	Maize/Corn	10	283.15	383.15	348.37	12.06	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
21062021	Maize/Corn	10	283.15	383.15	349.17	11.58	0.03
21062021	Maize/Corn	10	283.15	383.15	348.90	10.85	0.03
21062021	Maize/Corn	10	283.15	383.15	349.03	10.71	0.03
21158430	Yam	10	298.15	433.15	350.05	22.40	0.06
21158430	Yam	10	298.15	433.15	348.35	22.50	0.06
21158430	Yam	10	298.15	433.15	348.35	24.80	0.07
21158430	Yam	10	298.15	433.15	346.85	23.30	0.07
21158430	Yam	10	298.15	433.15	346.15	25.00	0.07
21158430	Yam	10	298.15	433.15	350.45	25.10	0.07
21158430	Yam	10	298.15	433.15	346.95	25.30	0.07
21175189	Wheat	10	293.15	403.15	343.10	5.08	0.01
21175189	Wheat	10	293.15	403.15	342.47	3.90	0.01
21175189	Wheat	10	293.15	403.15	343.05	4.48	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
21175189	Wheat	10	293.15	403.15	343.44	4.06	0.01
21175189	Wheat	10	293.15	403.15	341.93	5.42	0.02
21175189	Wheat	10	293.15	403.15	342.61	5.40	0.02
21214175	Banana	10	283.15	393.15	349.30	11.05	0.03
21214175	Banana	10	283.15	393.15	348.45	10.42	0.03
21214175	Banana	10	283.15	393.15	347.65	9.68	0.03
21214175	Banana	10	283.15	393.15	348.52	9.45	0.03
21214175	Banana	10	283.15	393.15	347.17	8.68	0.03
21535759	Acorn	10	298.15	453.15	392.95	17.70	0.05
21535759	Acorn	10	298.15	453.15	289.55	51.40	0.18
21535759	Acorn	10	298.15	453.15	288.85	78.70	0.27
21535759	Acorn	10	298.15	453.15	298.85	123.80	0.41
21535759	Acorn	10	298.15	453.15	293.45	88.90	0.30

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
21535759	Acorn	10	298.15	453.15	375.15	14.40	0.04
21535759	Acorn	10	298.15	453.15	287.25	92.50	0.32
21535759	Acorn	10	298.15	453.15	288.05	75.60	0.26
21535759	Acorn	10	298.15	453.15	290.15	80.60	0.28
21535759	Acorn	10	298.15	453.15	290.05	94.70	0.33
21604720	Sorghum				343.05	13.60	0.04
21604720	Sorghum				343.85	13.80	0.04
21604720	Sorghum				344.25	13.10	0.04
21604720	Sorghum				343.45	14.00	0.04
21604720	Sorghum				343.65	13.00	0.04
21604720	Maize/Corn			342.05	10.10	0.03	
22059442	Rice				352.75	9.10	0.03
22059442	Rice				353.45	6.10	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
22059442	Rice				353.45	7.00	0.02
22059442	Rice				353.15	8.70	0.02
22059442	Rice				353.85	7.30	0.02
22059442	Rice				353.75	6.50	0.02
22059442	Rice				354.55	5.90	0.02
22059442	Rice				353.65	6.70	0.02
22059442	Rice				355.05	5.60	0.02
22059442	Rice				355.45	4.40	0.01
22183883	Wheat	10	393.15	273.15	338.01	2.66	0.01
22183883	Wheat	10	393.15	273.15	344.73	1.81	0.01
22183883	Wheat	10	393.15	273.15	339.20	2.29	0.01
22183883	Wheat	10	393.15	273.15	338.81	3.34	0.01
22183883	Wheat	10	393.15	273.15	346.78	2.89	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
22183883	Wheat	10	393.15	273.15	340.06	2.93	0.01
22183883	Wheat	10	393.15	273.15	337.16	2.87	0.01
22183883	Wheat	10	393.15	273.15	342.75	2.20	0.01
22183883	Wheat	10	393.15	273.15	338.24	2.82	0.01
21780131	Pea				342.05	14.40	0.04
21780131	Pea				342.85	14.30	0.04
21780131	Pea				342.25	14.30	0.04
21780131	Pea				342.15	14.80	0.04
21780131	Pea				342.45	14.10	0.04
21780131	Pea				342.35	14.40	0.04
21780131	Pea				342.05	14.90	0.04
21780131	Pea				341.75	14.90	0.04
21780131	Pea				342.45	14.10	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
21780131	Pea				342.35	14.30	0.04
21780131	Fababean				340.35	16.70	0.05
21780131	Fababean				340.05	18.00	0.05
21780131	Fababean				340.75	16.90	0.05
21780131	Fababean				340.25	17.00	0.05
21780131	Fababean				340.05	16.70	0.05
21780131	Fababean				338.95	17.10	0.05
21780131	Fababean				340.05	16.70	0.05
21780131	Fababean				339.75	17.10	0.05
21780131	Fababean				339.85	16.90	0.05
21780131	Fababean				340.05	16.70	0.05
21780131	Fababean				339.95	16.80	0.05
22515236	Wheat	10	303.15	393.15	340.11	12.14	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
22515236	Wheat	10	303.15	393.15	341.56	12.26	0.04
22515236	Wheat	10	303.15	393.15	341.24	10.97	0.03
22515236	Wheat	10	303.15	393.15	341.18	12.00	0.04
22582811	Yam	5	303.15	403.15	352.95	19.90	0.06
22582811	Yam	5	303.15	403.15	353.15	2.90	0.01
22582811	Yam	5	303.15	403.15	358.05	4.20	0.01
22582811	Yam	5	303.15	403.15	363.55	4.10	0.01
22582811	Yam	5	303.15	403.15	353.05	3.60	0.01
22582811	Yam	5	303.15	403.15	357.85	6.00	0.02
22582811	Yam	5	303.15	403.15	362.25	7.20	0.02
22582811	Yam	5	303.15	403.15	354.55	5.10	0.01
22582811	Yam	5	303.15	403.15	358.85	6.00	0.02
22582811	Yam	5	303.15	403.15	364.65	3.80	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
23238952	Rice	10	293.15	413.15	338.75	10.00	0.03
23238952	Rice	10	293.15	413.15	338.65	9.20	0.03
23756853	Wheat	10	303.15	393.15	333.99	5.85	0.02
23756853	Wheat	10	303.15	393.15	334.06	6.86	0.02
23756853	Wheat	10	303.15	393.15	335.56	4.46	0.01
23756853	Wheat	10	303.15	393.15	334.64	6.06	0.02
23756853	Wheat	10	303.15	393.15	334.20	6.78	0.02
23756853	Wheat	10	303.15	393.15	335.90	5.87	0.02
24053807	Wolf Apple			337.65	13.21	0.04	
26904619	Sweet Potato	10	303.15	393.15	355.15	15.70	0.04
26904619	Sweet Potato	10	303.15	393.15	350.95	13.40	0.04
26904619	Sweet Potato	10	303.15	393.15	355.05	16.40	0.05
26904619	Sweet Potato	10	303.15	393.15	351.25	13.90	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
26904619	Sweet Potato	10	303.15	393.15	354.95	14.30	0.04
26904619	Sweet Potato	10	303.15	393.15	350.35	14.30	0.04
26904619	Sweet Potato	10	303.15	393.15	353.65	15.50	0.04
26904619	Sweet Potato	10	303.15	393.15	349.95	13.00	0.04
26904619	Sweet Potato	10	303.15	393.15	356.75	20.10	0.06
26904619	Sweet Potato	10	303.15	393.15	352.55	15.20	0.04
24506235	Common Bean	10	298.15	408.15	352.34	12.94	0.04
24506235	Common Bean	10	298.15	408.15	352.67	11.25	0.03
24506235	Common Bean	10	298.15	408.15	352.11	9.73	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
24506235	Common Bean	10	298.15	408.15	352.06	12.36	0.04
24506235	Common Bean	10	298.15	408.15	352.80	13.67	0.04
24122670	Maize/Corn	10	293.15	373.15	352.85	0.80	0.00
24122670	Maize/Corn	10	293.15	373.15	353.25	4.20	0.01
24122670	Maize/Corn	10	293.15	373.15	350.15	7.70	0.02
24122670	Maize/Corn	10	293.15	373.15	351.05	6.80	0.02
24122670	Maize/Corn	10	293.15	373.15	350.15	8.70	0.02
24122670	Maize/Corn	10	293.15	373.15	350.15	8.30	0.02
24122670	Maize/Corn	10	293.15	373.15	348.65	8.20	0.02
24122670	Maize/Corn	10	293.15	373.15	349.35	7.60	0.02
24122670	Maize/Corn	10	293.15	373.15	346.15	7.10	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
24122670	Maize/Corn	10	293.15	373.15	349.35	6.90	0.02
25225719	Potato				339.85	16.70	0.05
25225719	Potato				340.35	15.90	0.05
25225719	Potato				340.25	16.10	0.05
25328227	Rice				342.25	9.10	0.03
25328227	Rice				367.95	5.10	0.01
25328227	Rice				361.35	4.50	0.01
25328227	Rice				359.45	3.80	0.01
25328227	Rice				357.35	3.10	0.01
24771545	Maize/Corn			347.85	9.40	0.03	
24771545	Maize/Corn			347.45	9.00	0.03	
24771545	Maize/Corn			349.55	8.80	0.03	
24771545	Maize/Corn			350.65	8.90	0.03	

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
24771545	Maize/Corn			347.25	8.20	0.02	
24771545	Maize/Corn			347.55	8.10	0.02	
24771545	Maize/Corn			350.35	8.10	0.02	
24771545	Maize/Corn			349.55	8.10	0.02	
25844120	Rice	10	303.15	403.15	353.25	3.10	0.01
25844120	Rice	10	303.15	403.15	356.15	3.30	0.01
25844120	Rice	10	303.15	403.15	350.75	2.60	0.01
25844120	Rice	10	303.15	403.15	352.45	2.90	0.01
25844120	Rice	10	303.15	403.15	351.85	2.70	0.01
25844120	Rice	10	303.15	403.15	341.05	2.80	0.01
25844120	Rice	10	303.15	403.15	356.55	2.90	0.01
25844120	Rice	10	303.15	403.15	357.55	3.20	0.01
25844120	Rice	10	303.15	403.15	352.45	2.90	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
25844120	Rice	10	303.15	403.15	351.85	2.70	0.01
25844120	Rice	10	303.15	403.15	356.55	3.50	0.01
25844120	Rice	10	303.15	403.15	356.45	3.20	0.01
25844120	Rice	10	303.15	403.15	353.35	2.70	0.01
25844120	Rice	10	303.15	403.15	348.05	2.70	0.01
25781203	Rice	10	303.15	423.15	347.95	4.18	0.01
25781203	Rice	10	303.15	423.15	350.15	5.58	0.02
25781203	Rice	10	303.15	423.15	352.85	6.11	0.02
25781203	Rice	10	303.15	423.15	354.45	7.32	0.02
25781203	Rice	10	303.15	423.15	347.95	4.69	0.01
25781203	Rice	10	303.15	423.15	349.85	6.56	0.02
25781203	Rice	10	303.15	423.15	352.65	6.16	0.02
25781203	Rice	10	303.15	423.15	354.75	8.26	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
25906383	Sweet Potato	10	293.15	373.15	349.93	16.57	0.05
25906383	Sweet Potato	10	293.15	373.15	350.09	14.33	0.04
25906383	Sweet Potato	10	293.15	373.15	352.32	16.28	0.05
25906383	Sweet Potato	10	293.15	373.15	350.93	17.31	0.05
25906383	Sweet Potato	10	293.15	373.15	350.60	14.74	0.04
25906383	Sweet Potato	10	293.15	373.15	351.26	16.09	0.05
25906383	Sweet Potato	10	293.15	373.15	336.60	12.81	0.04
25906383	Sweet Potato	10	293.15	373.15	334.40	8.42	0.03
25906383	Sweet Potato	10	293.15	373.15	335.93	9.22	0.03
25906383	Sweet Potato	10	293.15	373.15	339.12	14.37	0.04
25906383	Sweet Potato	10	293.15	373.15	336.37	9.04	0.03
25906383	Sweet Potato	10	293.15	373.15	339.54	9.66	0.03
26018506	Rice	10	293.15	363.15	350.19	15.43	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
26018506	Rice	10	293.15	363.15	349.53	6.01	0.02
26018506	Rice	10	293.15	363.15	349.43	6.27	0.02
26018506	Rice	10	293.15	363.15	349.14	5.94	0.02
26018506	Rice	10	293.15	363.15	349.58	5.88	0.02
26194949	Lilium bulb			339.45	9.93	0.03	
26194949	Lilium bulb			339.35	11.61	0.03	
26194949	Lilium bulb			336.60	12.08	0.04	
26243900	Barley	10	298.15	383.15	335.85	9.49	0.03
26243900	Barley	10	298.15	383.15	335.05	9.50	0.03
26243900	Barley	10	298.15	383.15	335.45	9.58	0.03
26243900	Barley	10	298.15	383.15	335.35	8.89	0.03
26243900	Barley	10	298.15	383.15	336.15	7.85	0.02
26243900	Barley	10	298.15	383.15	334.65	8.79	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
26243900	Barley	10	298.15	383.15	335.35	9.61	0.03
26243900	Barley	10	298.15	383.15	334.35	9.20	0.03
26243900	Barley	10	298.15	383.15	335.85	6.49	0.02
26243911	Bambara Groundnut	5	253.15	393.15	346.57	9.37	0.03
26243911	Bambara Groundnut	5	253.15	393.15	348.10	6.31	0.02
26256258	Maize/Corn			396.45	14.80	0.04	
26256258	Maize/Corn			393.05	10.80	0.03	
26256258	Maize/Corn			393.35	9.70	0.02	
26256258	Maize/Corn			392.35	8.10	0.02	
26344967	Rice	10	300.15	393.15	351.14	4.56	0.01
26344967	Rice	10	300.15	393.15	352.44	6.43	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
26344978	Horse Chestnut	10	293.15	393.15	331.96	8.76	0.03
26344978	Sweet Potato	10	293.15	393.15	344.54	15.98	0.05
26344978	Water Chestnut	10	293.15	393.15	346.46	7.29	0.02
25231269	Rice	11.7	303.15	383.15	360.23	5.07	0.01
25231269	Chickpea	11.7	303.15	383.15	352.04	2.94	0.01
25231269	Amaranth	11.7	303.15	383.15	355.16	7.95	0.02
25231269	Maize/Corn	11.7	303.15	383.15	348.04	7.15	0.02
25231269	Cassava	11.7	303.15	383.15	344.24	6.46	0.02
25231269	Mixed starch	11.7	303.15	383.15	348.14	2.38	0.01
25231269	Mixed starch	11.7	303.15	383.15	345.80	2.11	0.01
25231269	Mixed starch	11.7	303.15	383.15	350.87	2.15	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
25231269	Mixed starch	11.7	303.15	383.15	349.02	1.94	0.01
25231269	Mixed starch	11.7	303.15	383.15	353.40	2.74	0.01
25231269	Mixed starch	11.7	303.15	383.15	354.18	1.78	0.01
25977003	Pinhão	10	313.15	413.15	333.30	11.60	0.03
25977003	Pinhão	10	313.15	413.15	338.14	7.20	0.02
25977003	Pinhão	10	313.15	413.15	341.03	3.61	0.01
25977003	Pinhão	10	313.15	413.15	337.01	10.31	0.03
25977003	Pinhão	10	313.15	413.15	342.84	2.84	0.01
25977003	Pinhão	10	313.15	413.15	342.43	4.88	0.01
25977003	Pinhão	10	313.15	413.15	340.97	2.16	0.01
25977003	Pinhão	10	313.15	413.15	331.51	11.73	0.04
25977003	Pinhão	10	313.15	413.15	336.58	7.43	0.02
25977003	Pinhão	10	313.15	413.15	339.22	2.12	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
26642044	Potato	10	303.15	393.15	333.55	10.75	0.03
26642044	Potato	10	303.15	393.15	334.01	10.47	0.03
26642044	Potato	10	303.15	393.15	333.48	10.16	0.03
26642044	Potato	10	303.15	393.15	334.12	10.92	0.03
26642044	Potato	10	303.15	393.15	331.10	10.24	0.03
26642044	Potato	10	303.15	393.15	333.88	10.23	0.03
26642044	Potato	10	303.15	393.15	333.93	9.68	0.03
26642044	Potato	10	303.15	393.15	333.60	7.70	0.02
26642044	Potato	10	303.15	393.15	330.74	10.14	0.03
26642044	Potato	10	303.15	393.15	333.24	9.54	0.03
26642044	Potato	10	303.15	393.15	334.36	9.07	0.03
26642044	Potato	10	303.15	393.15	335.00	6.18	0.02
26642044	Potato	10	303.15	393.15	331.66	6.11	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
26642044	Potato	10	303.15	393.15	334.98	5.43	0.02
26642044	Potato	10	303.15	393.15	335.30	5.19	0.02
26642044	Potato	10	303.15	393.15	336.34	4.41	0.01
26824830	Wheat	5	313.15	383.15	333.66	8.23	0.02
26824830	Wheat	5	313.15	383.15	339.03	9.35	0.03
26824830	Wheat	5	313.15	383.15	341.00	9.00	0.03
26824830	Wheat	5	313.15	383.15	335.23	9.90	0.03
26824830	Wheat	5	313.15	383.15	335.48	5.21	0.02
26824830	Wheat	5	313.15	383.15	341.53	6.27	0.02
26824830	Wheat	5	313.15	383.15	334.50	6.27	0.02
26824830	Wheat	5	313.15	383.15	343.09	7.08	0.02
26860788	Rice	10	293.15	373.15	340.25	2.60	0.01
26860788	Rice	10	293.15	373.15	340.45	4.60	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
26860788	Rice	10	293.15	373.15	340.35	5.50	0.02
26860788	Rice	10	293.15	373.15	340.05	14.00	0.04
26860788	Rice	10	293.15	373.15	340.75	14.40	0.04
26860788	Rice	10	293.15	373.15	341.45	14.30	0.04
26860788	Wheat	10	293.15	373.15	334.15	2.90	0.01
26860788	Wheat	10	293.15	373.15	333.95	4.10	0.01
26860788	Wheat	10	293.15	373.15	334.15	5.50	0.02
26860788	Wheat	10	293.15	373.15	334.25	8.50	0.03
26860788	Wheat	10	293.15	373.15	334.95	10.70	0.03
26860788	Wheat	10	293.15	373.15	335.25	10.70	0.03
27082515	Arrowhead			346.35	12.64	0.04	
27082515	Arrowhead			345.70	11.93	0.03	
27082515	Arrowhead			347.95	11.54	0.03	

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
27105125	Cassava	10	303.15	358.15	328.03	7.41	0.02
27105125	Cassava	10	303.15	358.15	331.60	3.07	0.01
27105125	Cassava	10	303.15	358.15	331.88	2.82	0.01
27105125	Cassava	10	303.15	358.15	332.06	3.62	0.01
27105125	Cassava	10	303.15	358.15	331.23	4.29	0.01
27105125	Cassava	10	303.15	358.15	331.27	4.19	0.01
27105125	Cassava	10	303.15	358.15	331.63	2.98	0.01
27105125	Cassava	10	303.15	358.15	332.01	4.13	0.01
27105125	Cassava	10	303.15	358.15	330.93	4.13	0.01
27105125	Cassava	10	303.15	358.15	331.97	3.10	0.01
27105125	Cassava	10	303.15	358.15	331.46	0.38	0.00
27478223	Wheat	10	303.15	393.15	333.95	5.31	0.02
27478223	Wheat	10	303.15	393.15	333.97	6.32	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
27478223	Wheat	10	303.15	393.15	333.40	4.85	0.01
27478223	Wheat	10	303.15	393.15	335.78	5.31	0.02
27478223	Wheat	10	303.15	393.15	335.83	6.20	0.02
27478223	Wheat	10	303.15	393.15	334.80	5.21	0.02
27478223	Wheat	10	303.15	393.15	336.54	8.11	0.02
27478223	Wheat	10	303.15	393.15	337.02	8.57	0.03
27478223	Wheat	10	303.15	393.15	335.63	8.47	0.03
27478223	Wheat	10	303.15	393.15	338.61	8.19	0.02
27478223	Wheat	10	303.15	393.15	339.12	8.97	0.03
27478223	Wheat	10	303.15	393.15	337.83	8.99	0.03
27447598	Sweet Potato	10	303.15	393.15	353.75	21.26	0.06
27447598	Sweet Potato	10	303.15	393.15	388.35	25.53	0.07
27447598	Sweet Potato	10	303.15	393.15	416.45	26.78	0.06

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
27523327	Maize/Corn	10	298.15	363.15	343.05	14.70	0.04
27523327	Maize/Corn	10	298.15	363.15	342.15	10.90	0.03
27523327	Maize/Corn	10	298.15	363.15	342.75	10.40	0.03
27523327	Maize/Corn	10	298.15	363.15	344.85	12.70	0.04
27715058	Rice	10	298.15	373.15	340.05	8.95	0.03
27715058	Rice	10	298.15	373.15	339.25	9.45	0.03
27715058	Rice	10	298.15	373.15	338.25	10.97	0.03
27715058	Rice	10	298.15	373.15	337.95	11.39	0.03
27715058	Rice	10	298.15	373.15	338.25	8.28	0.02
27715058	Rice	10	298.15	373.15	338.05	9.04	0.03
27715058	Rice	10	298.15	373.15	336.35	10.28	0.03
27715058	Rice	10	298.15	373.15	336.05	10.68	0.03
28115752	Maize/Corn	10	303.15	373.15	346.41	3.75	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
28115752	Rice	10	303.15	373.15	341.00	2.29	0.01
28115752	Wheat	10	303.15	373.15	338.56	2.64	0.01
28115752	Tapioca	10	303.15	373.15	345.29	3.11	0.01
28115752	Potato	10	303.15	373.15	351.86	8.23	0.02
26926871	Rice	10	293.15	393.15	341.65	9.11	0.03
26926871	Rice	10	293.15	393.15	341.28	10.83	0.03
26926871	Rice	10	293.15	393.15	337.42	7.51	0.02
26926871	Rice	10	293.15	393.15	339.45	7.83	0.02
26926871	Rice	10	293.15	393.15	336.92	7.35	0.02
26970416	Maize/Corn	10	293.15	453.15	354.94	99.58	0.28
26970416	Maize/Corn	10	293.15	453.15	349.00	45.68	0.13
26970416	Maize/Corn	10	293.15	453.15	365.53	73.56	0.20
26970416	Maize/Corn	10	293.15	453.15	374.54	57.48	0.15

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
26970416	Maize/Corn	10	293.15	453.15	365.33	50.85	0.14
26970416	Maize/Corn	10	293.15	453.15	381.78	33.63	0.09
26970416	Maize/Corn	10	293.15	453.15	365.55	78.47	0.21
26970416	Maize/Corn	10	293.15	453.15	355.38	65.04	0.18
26970416	Maize/Corn	10	293.15	453.15	367.07	47.29	0.13
26970416	Maize/Corn	10	293.15	453.15	357.65	96.27	0.27
26970416	Maize/Corn	10	293.15	453.15	353.41	74.92	0.21
26970416	Maize/Corn	10	293.15	453.15	347.77	144.63	0.42
26970416	Maize/Corn	10	293.15	453.15	356.48	136.62	0.38
26970416	Maize/Corn	10	293.15	453.15	356.14	73.97	0.21
28241110	Rice	10	293.15	413.15	342.65	13.75	0.04
28241110	Rice	10	293.15	413.15	343.15	12.73	0.04
28241110	Rice	10	293.15	413.15	343.38	12.64	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
28241110	Rice	10	293.15	413.15	344.80	12.51	0.04
28241110	Rice	10	293.15	413.15	344.88	12.10	0.04
28388358	Rice	10	293.15	368.15	341.84	2.98	0.01
28388358	Rice	10	293.15	368.15	341.22	3.09	0.01
28388358	Rice	10	293.15	368.15	343.50	3.35	0.01
30263590	Chestnut	5	298.15	393.15	338.22	15.55	0.05
30263590	Chestnut	5	298.15	393.15	339.36	12.34	0.04
30263590	Chestnut	5	298.15	393.15	337.81	12.05	0.04
28740298	Wheat	10	313.15	383.15	329.84	13.14	0.04
28740298	Wheat	10	313.15	383.15	328.21	7.95	0.02
28740298	Wheat	10	313.15	383.15	328.35	6.97	0.02
28740298	Wheat	10	313.15	383.15	328.50	12.47	0.04
28740298	Wheat	10	313.15	383.15	328.27	6.41	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
28740298	Wheat	10	313.15	383.15	328.78	5.06	0.02
28727742	Maize/Corn	5	293.15	393.15	343.85	10.60	0.03
28727742	Maize/Corn	5	293.15	393.15	348.05	10.90	0.03
28727742	Maize/Corn	5	293.15	393.15	349.05	9.20	0.03
28727742	Maize/Corn	5	293.15	393.15	349.45	8.50	0.02
28727742	Maize/Corn	5	293.15	393.15	347.15	13.30	0.04
28727742	Maize/Corn	5	293.15	393.15	346.55	13.10	0.04
28727742	Maize/Corn	5	293.15	393.15	346.35	13.40	0.04
28727742	Maize/Corn	5	293.15	393.15	344.95	13.20	0.04
28727742	Maize/Corn	5	293.15	393.15	345.05	13.40	0.04
28727742	Maize/Corn	5	293.15	393.15	345.45	13.10	0.04
28895935	Rice	10	298.15	403.15	336.25	9.88	0.03
28895935	Rice	10	298.15	403.15	337.85	10.01	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
28895935	Rice	10	298.15	403.15	337.95	10.19	0.03
28895935	Rice	10	298.15	403.15	338.85	10.29	0.03
28895935	Rice	10	298.15	403.15	339.45	10.48	0.03
28895935	Rice	10	298.15	403.15	345.35	10.36	0.03
28951617	Wheat	10	298.15	403.15	336.15	10.50	0.03
28951617	Wheat	10	298.15	403.15	336.85	9.10	0.03
28951617	Wheat	10	298.15	403.15	335.75	11.00	0.03
28951617	Wheat	10	298.15	403.15	337.35	9.50	0.03
28951617	Wheat	10	298.15	403.15	337.55	8.30	0.02
28951617	Wheat	10	298.15	403.15	336.75	10.40	0.03
28951617	Wheat	10	298.15	403.15	336.35	10.70	0.03
28951617	Wheat	10	298.15	403.15	337.05	9.30	0.03
28951617	Wheat	10	298.15	403.15	335.55	11.40	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
28951617	Wheat	10	298.15	403.15	337.85	10.20	0.03
28951617	Wheat	10	298.15	403.15	337.55	8.80	0.03
28951617	Wheat	10	298.15	403.15	336.65	11.30	0.03
29044217	Jackfruit	10	293.15	373.15	355.65	9.14	0.03
29044217	Jackfruit	10	293.15	373.15	360.58	16.78	0.05
29044217	Jackfruit	10	293.15	373.15	350.41	15.28	0.04
29044217	Jackfruit	10	293.15	373.15	351.99	14.78	0.04
29044217	Jackfruit	10	293.15	373.15	351.90	13.91	0.04
29389561	Banana	10	303.15	423.15	337.85	4.70	0.01
29389561	Banana	10	303.15	423.15	338.65	3.70	0.01
29389561	Banana	10	303.15	423.15	339.15	3.10	0.01
29389561	Banana	10	303.15	423.15	339.65	2.90	0.01
28718948	Maize/Corn	10	293.15	373.15	345.55	12.20	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
28718948	Maize/Corn	10	293.15	373.15	346.55	10.60	0.03
28718948	Maize/Corn	10	293.15	373.15	344.55	12.00	0.03
28718948	Maize/Corn	10	293.15	373.15	344.55	11.00	0.03
28718948	Maize/Corn	10	293.15	373.15	343.95	12.30	0.04
28718948	Maize/Corn	10	293.15	373.15	345.25	12.90	0.04
28718948	Maize/Corn	10	293.15	373.15	344.45	12.20	0.04
28718948	Maize/Corn	10	293.15	373.15	344.25	10.80	0.03
28718948	Maize/Corn	10	293.15	373.15	343.45	12.20	0.04
28718948	Maize/Corn	10	293.15	373.15	345.25	10.90	0.03
28718948	Maize/Corn	10	293.15	373.15	344.65	10.50	0.03
28718948	Maize/Corn	10	293.15	373.15	347.55	11.20	0.03
28718948	Maize/Corn	10	293.15	373.15	344.55	12.80	0.04
28718948	Maize/Corn	10	293.15	373.15	345.75	13.30	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
28718948	Maize/Corn	10	293.15	373.15	344.85	11.30	0.03
28718948	Maize/Corn	10	293.15	373.15	344.55	11.20	0.03
29606750	Potato				339.85	16.40	0.05
29606750	Potato				340.35	15.90	0.05
29606750	Potato				340.45	16.10	0.05
29606750	Potato				340.85	15.90	0.05
29606750	Potato				340.75	15.90	0.05
29606750	Potato				341.15	15.60	0.05
29606750	Potato				341.05	15.90	0.05
30154327	Maize/Corn	10	293.15	403.15	346.65	7.90	0.02
30154327	Maize/Corn	10	293.15	403.15	347.15	9.20	0.03
30154327	Maize/Corn	10	293.15	403.15	348.55	8.20	0.02
30154327	Maize/Corn	10	293.15	403.15	347.25	9.70	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
30208563	Banana	10	298.15	403.15	342.95	15.80	0.05
30208563	Banana	10	298.15	403.15	344.75	16.10	0.05
29883702	Arracacha	10	303.15	373.15	330.95	6.10	0.02
29883702	Arracacha	10	303.15	373.15	332.05	7.10	0.02
29883702	Arracacha	10	303.15	373.15	332.25	8.80	0.03
30544737	Longan seeds	10	303.15	383.15	353.65	16.40	0.05
30544737	Longan seeds	10	303.15	383.15	352.15	15.60	0.04
30544737	Longan seeds	10	303.15	383.15	349.85	13.50	0.04
30544737	Maize/Corn	10	303.15	383.15	352.35	10.30	0.03
30959992	Maize/Corn	10	303.15	393.15	342.98	16.78	0.05
30959992	Maize/Corn	10	303.15	393.15	343.03	15.64	0.05
30959992	Maize/Corn	10	303.15	393.15	342.83	15.52	0.05
30959992	Maize/Corn	10	303.15	393.15	342.85	15.23	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
30959992	Maize/Corn	10	303.15	393.15	342.76	14.87	0.04
30959992	Maize/Corn	10	303.15	393.15	343.11	13.00	0.04
30959992	Maize/Corn	10	303.15	393.15	341.86	12.64	0.04
30959992	Maize/Corn	10	303.15	393.15	341.46	12.31	0.04
30959992	Maize/Corn	10	303.15	393.15	341.34	12.26	0.04
30959992	Maize/Corn	10	303.15	393.15	342.02	12.17	0.04
30728543	Fuzi	10	293.15	413.15	350.35	1.77	0.01
30728543	Fuzi	10	293.15	413.15	339.05	0.97	0.00
30728543	Fuzi	10	293.15	413.15	348.05	1.49	0.00
30728543	Fuzi	10	293.15	413.15	334.75	0.71	0.00
30728580	Sweet Potato	10	298.15	373.15	342.09	12.46	0.04
31619620	Rice	10	298.15	393.15	341.88	12.22	0.04
31619620	Rice	10	298.15	393.15	340.78	11.12	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
31619620	Rice	10	298.15	393.15	341.76	7.77	0.02
31619620	Rice	10	298.15	393.15	352.87	0.44	0.00
31619620	Rice	10	298.15	393.15	354.51	0.13	0.00
30960317	Maize/Corn	5	298.15	368.15	353.60	10.94	0.03
30960317	Maize/Corn	5	298.15	368.15	342.60	10.57	0.03
30960317	Maize/Corn	5	298.15	368.15	352.23	10.07	0.03
30960317	Maize/Corn	5	298.15	368.15	340.24	9.14	0.03
30791555	Rice	10	303.15	403.15	340.80	7.50	0.02
30791555	Rice	10	303.15	403.15	340.27	6.89	0.02
30791555	Rice	10	303.15	403.15	339.88	6.65	0.02
30791555	Rice	10	303.15	403.15	339.27	7.35	0.02
30791555	Rice	10	303.15	403.15	344.11	11.99	0.03
30791555	Rice	10	303.15	403.15	340.93	8.60	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
30791555	Rice	10	303.15	403.15	339.42	7.66	0.02
30791555	Rice	10	303.15	403.15	339.45	8.36	0.02
31060302	Millet	10		383.15	343.65	9.60	0.03
31060302	Millet	10		383.15	351.05	10.80	0.03
31060302	Millet	10		383.15	344.15	6.60	0.02
31060302	Millet	10		383.15	346.15	8.50	0.02
31069435	Maize/Corn	10	283.15	423.15	343.15	9.20	0.03
31069435	Maize/Corn	10	283.15	423.15	343.15	9.10	0.03
31069435	Maize/Corn	10	283.15	423.15	343.25	8.90	0.03
31069435	Potato	10	283.15	423.15	338.25	14.90	0.04
31069435	Potato	10	283.15	423.15	339.85	13.00	0.04
31069435	Potato	10	283.15	423.15	339.05	16.80	0.05
31069435	Potato	10	283.15	423.15	338.75	17.10	0.05

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
31367366	Barley		293.15	393.15	340.72	8.92	0.03
31367366	Barley		293.15	393.15	340.66	7.14	0.02
31367366	Barley		293.15	393.15	338.28	8.66	0.03
31367366	Barley		293.15	393.15	339.49	8.56	0.03
31367366	Barley		293.15	393.15	337.51	10.66	0.03
31367366	Barley		293.15	393.15	338.27	9.84	0.03
31269264	Sweet Potato	10	293.15	393.15	351.36	15.88	0.05
31269264	Sweet Potato	10	293.15	393.15	355.07	16.80	0.05
31269264	Sweet Potato	10	293.15	393.15	355.46	17.93	0.05
31269264	Sweet Potato	10	293.15	393.15	355.72	17.60	0.05
31269264	Sweet Potato	10	293.15	393.15	356.27	18.39	0.05
31269264	Sweet Potato	10	293.15	393.15	356.56	17.68	0.05
31269264	Sweet Potato	10	293.15	393.15	356.60	18.79	0.05

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
31269264	Sweet Potato	10	293.15	393.15	356.94	18.84	0.05
31269264	Sweet Potato	10	293.15	393.15	356.94	19.16	0.05
31269264	Sweet Potato	10	293.15	393.15	357.14	19.39	0.05
31428349	Wheat	6	283.15	433.15	335.15	11.80	0.04
31428349	Wheat	6	283.15	433.15	326.55	6.40	0.02
31428349	Wheat	6	283.15	433.15	330.75	9.50	0.03
31428349	Wheat	6	283.15	433.15	323.95	5.80	0.02
31437204	Sweet Potato	10	303.15	368.15	347.81	10.30	0.03
31437204	Sweet Potato	10	303.15	368.15	346.90	10.25	0.03
31437204	Sweet Potato	10	303.15	368.15	345.20	9.81	0.03
31694250	Djulis	5	313.15	373.15	337.50	9.24	0.03
31694250	Djulis	5	313.15	373.15	338.36	8.51	0.03
31694250	Djulis	5	313.15	373.15	339.17	6.95	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
32139712	Rice	10	293.15	473.15	347.36	131.45	0.38
32139712	Rice	10	293.15	473.15	347.02	130.00	0.37
32139712	Rice	10	293.15	473.15	346.61	146.00	0.42
32139712	Rice	10	293.15	473.15	351.55	370.87	1.05
32139712	Rice	10	293.15	473.15	349.81	186.04	0.53
32139712	Chestnut	10	293.15	473.15	348.38	161.63	0.46
32405385	Potato	5	298.15	373.15	332.35	2.50	0.01
32405385	Potato	5	298.15	373.15	332.26	2.63	0.01
32405385	Potato	5	298.15	373.15	332.03	3.92	0.01
32405385	Potato	5	298.15	373.15	331.58	4.58	0.01
32405385	Potato	5	298.15	373.15	331.22	6.01	0.02
32405385	Potato	5	298.15	373.15	329.66	12.10	0.04
32455544	Mung Bean	10	293.15	393.15	344.86	14.07	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
32455544	Mung Bean	10	293.15	393.15	344.77	14.40	0.04
32455544	Mung Bean	10	293.15	393.15	347.02	11.44	0.03
32455544	Mung Bean	10	293.15	393.15	352.99	6.77	0.02
32481610	Pigeon pea	5	298.15	403.15	343.24	645.53	1.88
32481610	Pigeon pea	5	298.15	403.15	343.96	490.84	1.43
32481610	Pigeon pea	5	298.15	403.15	348.85	526.73	1.51
32227353	Sweet Potato	8	293.15	403.15	350.42	7.37	0.02
32227353	Sweet Potato	8	293.15	403.15	349.89	13.25	0.04
32566212	Oat	10	293.15	368.15	329.32	0.52	0.00
32566212	Oat	10	293.15	368.15	328.35	0.59	0.00
32566212	Oat	10	293.15	368.15	327.53	1.10	0.00
32566212	Oat	10	293.15	368.15	327.98	0.95	0.00
32566212	Oat	10	293.15	368.15	328.17	0.39	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
32566212	Oat	10	293.15	368.15	327.43	0.46	0.00
32566212	Oat	10	293.15	368.15	328.00	0.52	0.00
32566212	Oat	10	293.15	368.15	326.80	0.48	0.00
32566212	Oat	10	293.15	368.15	327.57	0.39	0.00
32566212	Oat	10	293.15	368.15	326.93	0.76	0.00
32566212	Oat	10	293.15	368.15	327.47	0.63	0.00
32566212	Oat	10	293.15	368.15	333.91	0.59	0.00
32664209	Maize/Corn	10	303.15	393.15	344.11	12.08	0.04
32664209	Maize/Corn	10	303.15	393.15	347.18	12.97	0.04
32664209	Maize/Corn	10	303.15	393.15	348.37	13.26	0.04
32664209	Maize/Corn	10	303.15	393.15	349.76	13.63	0.04
32664209	Maize/Corn	10	303.15	393.15	350.81	11.86	0.03
32751822	Chestnut	10	293.15	393.15	337.35	2.91	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
32751822	Chestnut	10	293.15	393.15	335.35	2.61	0.01
32751822	Chestnut	10	293.15	393.15	337.15	2.30	0.01
32751822	Chestnut	10	293.15	393.15	337.45	0.97	0.00
32751822	Chestnut	10	293.15	393.15	336.25	1.18	0.00
32624600	Water Chestnut	10	293.15	423.15	349.92	7.02	0.02
32624600	Water Chestnut	10	293.15	423.15	523.44	5.54	0.01
32651668	Rice	10	303.15	403.15	361.25	2.80	0.01
32651668	Rice	10	303.15	403.15	360.95	2.70	0.01
32651668	Rice	10	303.15	403.15	360.65	1.70	0.00
32651668	Rice	10	303.15	403.15	354.15	2.40	0.01
32710967	Sweet Potato	10	298.15	453.15	342.85	12.30	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
32710967	Sweet Potato	10	298.15	453.15	351.85	9.60	0.03
32710967	Sweet Potato	10	298.15	453.15	346.65	19.60	0.06
32710967	Sweet Potato	10	298.15	453.15	346.55	13.20	0.04
32710967	Sweet Potato	10	298.15	453.15	350.15	15.50	0.04
32710967	Sweet Potato	10	298.15	453.15	346.35	11.40	0.03
32710967	Sweet Potato	10	298.15	453.15	364.25	15.20	0.04
32710967	Sweet Potato	10	298.15	453.15	352.85	15.90	0.05
32710967	Sweet Potato	10	298.15	453.15	356.35	13.00	0.04
32710967	Sweet Potato	10	298.15	453.15	347.25	13.70	0.04
32710967	Cassava	10	298.15	453.15	341.85	12.90	0.04
32710967	Cassava	10	298.15	453.15	354.55	11.10	0.03
32710967	Cassava	10	298.15	453.15	357.35	12.00	0.03
32710967	Cassava	10	298.15	453.15	355.05	13.10	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
32710967	Cassava	10	298.15	453.15	363.25	12.20	0.03
32710967	Cassava	10	298.15	453.15	355.35	13.40	0.04
32710967	Cassava	10	298.15	453.15	363.75	14.20	0.04
32710967	Cassava	10	298.15	453.15	364.95	16.20	0.04
32710967	Cassava	10	298.15	453.15	355.45	12.30	0.03
32710967	Cassava	10	298.15	453.15	356.35	14.50	0.04
32710967	Maize/Corn	10	298.15	453.15	352.75	14.90	0.04
32710967	Maize/Corn	10	298.15	453.15	414.15	10.30	0.02
32710967	Maize/Corn	10	298.15	453.15	413.75	14.50	0.04
32710967	Maize/Corn	10	298.15	453.15	414.05	13.30	0.03
32710967	Maize/Corn	10	298.15	453.15	410.35	17.00	0.04
32710967	Maize/Corn	10	298.15	453.15	412.25	15.70	0.04
32710967	Maize/Corn	10	298.15	453.15	415.35	24.10	0.06

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
32710967	Maize/Corn	10	298.15	453.15	411.95	17.60	0.04
32710967	Maize/Corn	10	298.15	453.15	414.75	18.60	0.04
32710967	Maize/Corn	10	298.15	453.15	413.85	16.20	0.04
33190270	Potato	10	293.15	393.15	338.08	18.19	0.05
33190270	Potato	10	293.15	393.15	337.56	17.48	0.05
33190270	Potato	10	293.15	393.15	349.25	17.47	0.05
33190270	Potato	10	293.15	393.15	337.85	17.25	0.05
33190270	Potato	10	293.15	393.15	349.43	17.23	0.05
33190270	Potato	10	293.15	393.15	339.54	16.89	0.05
33190270	Potato	10	293.15	393.15	353.26	16.64	0.05
33190270	Potato	10	293.15	393.15	340.38	16.51	0.05
33190270	Potato	10	293.15	393.15	357.43	16.29	0.05
33190270	Potato	10	293.15	393.15	355.75	15.82	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
33190270	Potato	10	293.15	393.15	360.72	15.45	0.04
33190270	Potato	10	293.15	393.15	356.70	10.35	0.03
34180609	Neorautanenia mitis	10	333.15	573.15	365.55	6.38	0.02
34180609	Neorautanenia mitis	10	333.15	573.15	363.01	5.27	0.01
33553420	Macrophytes	10	298.15	393.15	363.00	13.73	0.04
33553420	Macrophytes	10	298.15	393.15	364.50	12.81	0.04
33553420	Macrophytes	10	298.15	393.15	367.60	7.31	0.02
33553420	Macrophytes	10	298.15	393.15	362.98	13.15	0.04
33553420	Macrophytes	10	298.15	393.15	369.17	3.85	0.01
33553420	Macrophytes	10	298.15	393.15	347.77	18.66	0.05
33553420	Macrophytes	10	298.15	393.15	359.41	19.93	0.06

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
33553420	Macrophytes	10	298.15	393.15	357.22	13.12	0.04
33567823	Wheat	5	303.15	393.15	332.65	10.60	0.03
33567823	Wheat	5	303.15	393.15	332.95	10.10	0.03
33567823	Wheat	5	303.15	393.15	327.65	9.30	0.03
33567823	Wheat	5	303.15	393.15	327.05	9.80	0.03
33567823	Wheat	5	303.15	393.15	332.45	10.90	0.03
33567823	Wheat	5	303.15	393.15	333.75	10.50	0.03
33567823	Wheat	5	303.15	393.15	327.85	10.10	0.03
33567823	Wheat	5	303.15	393.15	328.05	9.90	0.03
33632669	Tigernut	10	333.15	573.15	398.74	7.05	0.02
33632669	Tigernut	10	333.15	573.15	414.75	7.76	0.02
33632669	Tigernut	10	333.15	573.15	397.62	1.79	0.00
33632669	Tigernut	10	333.15	573.15	406.03	4.01	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
33624319	Potato	2	298.15	388.15	337.03	15.60	0.05
33624319	Potato	2	298.15	388.15	335.31	16.49	0.05
33624319	Potato	2	298.15	388.15	336.81	15.37	0.05
33624319	Potato	2	298.15	388.15	335.48	17.07	0.05
33624319	Potato	2	298.15	388.15	336.70	16.53	0.05
33624319	Potato	2	298.15	388.15	335.01	16.36	0.05
33624319	Potato	2	298.15	388.15	333.92	16.51	0.05
33624319	Potato	2	298.15	388.15	335.53	16.98	0.05
33624319	Potato	2	298.15	388.15	337.47	16.38	0.05
33624319	Potato	2	298.15	388.15	336.42	16.85	0.05
33678878	Achira	10	303.15	373.15	339.66	13.67	0.04
33678878	Achira	10	303.15	373.15	340.08	16.22	0.05
33678878	Achira	10	303.15	373.15	338.18	14.41	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
33678878	Achira	10	303.15	373.15	339.02	13.80	0.04
33539954	Ramie				344.95	15.60	0.05
33012027	Rice	10	303.15	368.15	341.05	8.00	0.02
33012027	Rice	10	303.15	368.15	340.35	7.80	0.02
33012027	Rice	10	303.15	368.15	340.55	7.40	0.02
33012027	Rice	10	303.15	368.15	340.95	8.00	0.02
33012027	Rice	10	303.15	368.15	340.85	8.00	0.02
33012027	Rice	10	303.15	368.15	341.55	8.10	0.02
33012027	Rice	10	303.15	368.15	342.25	8.60	0.03
33012027	Rice	10	303.15	368.15	341.65	8.50	0.02
33012027	Rice	10	303.15	368.15	341.95	7.70	0.02
33012027	Rice	10	303.15	368.15	341.45	8.20	0.02
33012027	Rice	10	303.15	368.15	341.45	8.30	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
33012027	Rice	10	303.15	368.15	341.45	8.20	0.02
33034077	Rice	10	293.15	373.15	341.95	10.59	0.03
33034077	Rice	10	293.15	373.15	341.65	11.46	0.03
33034077	Rice	10	293.15	373.15	341.15	12.16	0.04
33034077	Rice	10	293.15	373.15	341.55	10.85	0.03
33034077	Rice	10	293.15	373.15	341.25	11.92	0.03
33034077	Rice	10	293.15	373.15	340.35	12.65	0.04
33746272	Cassava	10	313.15	393.15	342.02	10.43	0.03
33746272	Cassava	10	313.15	393.15	342.83	11.09	0.03
33746272	Cassava	10	313.15	393.15	341.99	11.45	0.03
33746272	Cassava	10	313.15	393.15	341.20	12.61	0.04
33746272	Cassava	10	313.15	393.15	341.01	12.28	0.04
33746272	Cassava	10	313.15	393.15	341.37	13.27	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
33746272	Cassava	10	313.15	393.15	341.00	11.75	0.03
33746272	Cassava	10	313.15	393.15	340.84	11.96	0.04
33916902	Barley	5	281.15	393.15	338.85	3.22	0.01
33916902	Wheat	5	281.15	393.15	334.76	5.55	0.02
33916902	Einkorn	5	281.15	393.15	337.44	4.27	0.01
33916902	Einkorn + Lentil	5	281.15	393.15	338.71	5.60	0.02
33916902	Lentils	5	281.15	393.15	347.13	0.93	0.00
33916902	Einkorn + Spelt	5	281.15	393.15	338.01	5.54	0.02
33916902	Spelt	5	281.15	393.15	336.57	4.55	0.01
33916902	Einkorn + Barley	5	281.15	393.15	338.25	4.57	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
33621570	Amaranth	10			341.05	10.60	0.03
34026080	Rice	10	303.15	423.15	349.15	6.30	0.02
34026080	Rice	10	303.15	423.15	349.45	3.90	0.01
34026080	Rice	10	303.15	423.15	351.05	6.90	0.02
34026080	Rice	10	303.15	423.15	354.55	9.90	0.03
34199868	Longan fruits	10	303.15	393.15	350.05	14.90	0.04
34199868	Longan fruits	10	303.15	393.15	350.05	15.40	0.04
34199868	Longan fruits	10	303.15	393.15	350.45	15.10	0.04
34199868	Longan fruits	10	303.15	393.15	350.85	15.80	0.05
34199868	Longan fruits	10	303.15	393.15	349.45	14.30	0.04
34199868	Longan fruits	10	303.15	393.15	350.75	13.50	0.04
34199868	Longan fruits	10	303.15	393.15	350.75	15.80	0.05
34199868	Longan fruits	10	303.15	393.15	349.85	14.70	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34199868	Longan fruits	10	303.15	393.15	350.35	15.10	0.04
34199868	Longan fruits	10	303.15	393.15	350.55	13.20	0.04
34199868	Longan fruits	10	303.15	393.15	348.45	15.50	0.04
34199868	Longan fruits	10	303.15	393.15	350.05	15.60	0.04
34199868	Longan fruits	10	303.15	393.15	350.95	14.70	0.04
34199868	Longan fruits	10	303.15	393.15	351.15	14.10	0.04
34249389	Potato		298.15	423.15	344.25	13.10	0.04
34249389	Potato		298.15	423.15	344.45	7.80	0.02
34249389	Potato		298.15	423.15	345.35	11.90	0.03
34249389	Potato		298.15	423.15	344.55	12.20	0.04
34249389	Potato		298.15	423.15	344.75	12.10	0.04
34249389	Potato		298.15	423.15	346.05	14.20	0.04
34249389	Potato		298.15	423.15	346.95	11.30	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34249389	Potato		298.15	423.15	346.35	11.20	0.03
34249389	Potato		298.15	423.15	347.05	13.00	0.04
34249389	Potato		298.15	423.15	347.25	13.10	0.04
34198695	Banana	10	313.15	363.15	351.12	3.05	0.01
34198695	Banana	10	313.15	363.15	350.13	7.76	0.02
34235171	Maize/Corn	10	323.15	433.15	344.71	14.54	0.04
34235171	Maize/Corn	10	323.15	433.15	345.01	13.14	0.04
34235171	Maize/Corn	10	323.15	433.15	348.48	16.86	0.05
34235171	Maize/Corn	10	323.15	433.15	368.59	18.24	0.05
34235171	Maize/Corn	10	323.15	433.15	367.21	17.75	0.05
34235171	Maize/Corn	10	323.15	433.15	368.09	18.05	0.05
34299614	Lotus rhizome	10	298.15	383.15	343.19	3.96	0.01
34299614	Lotus rhizome	10	298.15	383.15	352.77	3.30	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34299614	Lotus rhizome	10	298.15	383.15	354.64	2.91	0.01
34299614	Lotus rhizome	10	298.15	383.15	355.82	1.44	0.00
34299614	Lotus rhizome	10	298.15	383.15	344.53	3.83	0.01
34299614	Lotus rhizome	10	298.15	383.15	352.50	3.36	0.01
34299614	Lotus rhizome	10	298.15	383.15	348.26	3.35	0.01
34299614	Lotus rhizome	10	298.15	383.15	341.97	4.09	0.01
34299614	Lotus rhizome	10	298.15	383.15	350.84	3.34	0.01
34299614	Lotus rhizome	10	298.15	383.15	356.36	2.79	0.01
34299614	Lotus rhizome	10	298.15	383.15	357.96	1.60	0.00
34299614	Lotus rhizome	10	298.15	383.15	343.91	4.06	0.01
34299614	Lotus rhizome	10	298.15	383.15	351.95	3.48	0.01
34299614	Lotus rhizome	10	298.15	383.15	349.91	3.25	0.01
34441465	Water caltrop	10	298.15	368.15	354.33	4.41	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34441465	Water caltrop	10	298.15	368.15	360.50	3.35	0.01
34441465	Water caltrop	10	298.15	368.15	362.04	3.39	0.01
34441465	Water caltrop	10	298.15	368.15	361.69	3.74	0.01
34441465	Water caltrop	10	298.15	368.15	361.84	3.76	0.01
33368353	Potato	3	283.15	393.15	336.48	14.30	0.04
33368353	Potato	3	283.15	393.15	341.04	7.73	0.02
33368353	Potato	3	283.15	393.15	341.03	4.50	0.01
33368353	Potato	3	283.15	393.15	341.86	2.43	0.01
33368353	Potato	3	283.15	393.15	342.04	1.20	0.00
34603817	Barley				340.48	5.98	0.02
34603817	Barley				346.27	3.62	0.01
34603817	Mung Bean			342.60	4.46	0.01	
34603817	Potato				340.96	5.60	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34603817	Maize/Corn			336.50	3.66	0.01	
34577093	Potato	3	283.15	393.15	336.38	14.30	0.04
34577093	Potato	3	283.15	393.15	338.10	8.37	0.02
34577093	Potato	3	283.15	393.15	339.95	7.90	0.02
34577093	Potato	3	283.15	393.15	340.36	4.48	0.01
34577093	Potato	3	283.15	393.15	343.25	3.09	0.01
34577093	Potato	3	283.15	393.15	345.03	1.50	0.00
34577093	Potato	3	283.15	393.15	347.05	0.50	0.00
34577093	Potato	3	283.15	393.15	347.00	1.30	0.00
34577093	Potato	3	283.15	393.15	340.11	0.33	0.00
34577093	Potato	3	283.15	393.15	343.52	0.43	0.00
34294296	Potato	10	293.15	413.15	330.65	10.70	0.03
34294296	Potato	10	293.15	413.15	332.35	10.40	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34294296	Potato	10	293.15	413.15	333.25	8.10	0.02
34294296	Potato	10	293.15	413.15	332.35	4.00	0.01
34294296	Potato	10	293.15	413.15	332.65	10.40	0.03
34294296	Potato	10	293.15	413.15	333.35	7.80	0.02
34294296	Potato	10	293.15	413.15	335.05	4.20	0.01
34343585	Maize/Corn	10	293.15	373.15	347.95	12.80	0.04
34343585	Maize/Corn	10	293.15	373.15	346.15	11.80	0.03
34343585	Maize/Corn	10	293.15	373.15	346.15	11.60	0.03
34343585	Maize/Corn	10	293.15	373.15	344.65	10.90	0.03
34343585	Maize/Corn	10	293.15	373.15	346.35	11.20	0.03
34343585	Maize/Corn	10	293.15	373.15	343.05	10.00	0.03
34343585	Maize/Corn	10	293.15	373.15	346.05	9.90	0.03
34343585	Maize/Corn	10	293.15	373.15	342.95	9.60	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34343585	Maize/Corn	10	293.15	373.15	346.75	12.60	0.04
34343585	Maize/Corn	10	293.15	373.15	346.65	9.50	0.03
34343585	Maize/Corn	10	293.15	373.15	347.85	11.20	0.03
34343585	Maize/Corn	10	293.15	373.15	345.85	9.40	0.03
34681468	Rice	10	303.15	373.15	344.78	6.20	0.02
34681468	Rice	10	303.15	373.15	345.68	5.34	0.02
34681468	Rice	10	303.15	373.15	347.07	4.68	0.01
34681468	Rice	10	303.15	373.15	347.37	4.26	0.01
34681468	Rice	10	303.15	373.15	347.70	3.24	0.01
34681468	Rice	10	303.15	373.15	347.96	3.09	0.01
33818781	Potato	5	293.15	383.15	344.26	16.39	0.05
33818781	Potato	5	293.15	383.15	343.70	16.91	0.05
33818781	Potato	5	293.15	383.15	341.12	16.24	0.05

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
33818781	Potato	5	293.15	383.15	342.98	15.22	0.04
33818781	Potato	5	293.15	383.15	343.29	15.22	0.04
33818781	Potato	5	293.15	383.15	343.22	15.62	0.05
33818781	Potato	5	293.15	383.15	343.34	19.02	0.06
33818781	Potato	5	293.15	383.15	343.34	14.89	0.04
34778582	Wheat	5	298.15	373.15	336.05	14.12	0.04
34778582	Composite flour	5	298.15	373.15	338.21	12.43	0.04
34778582	Durian	5	298.15	373.15	340.06	12.38	0.04
34778582	Durian	5	298.15	373.15	341.64	12.24	0.04
34597694	Mung Bean	10	293.15	393.15	340.82	7.76	0.02
34597694	Mung Bean	10	293.15	393.15	340.76	9.42	0.03
34597694	Mung Bean	10	293.15	393.15	340.92	8.69	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34597694	Mung Bean	10	293.15	393.15	341.43	7.98	0.02
34597694	Mung Bean	10	293.15	393.15	341.70	7.47	0.02
34597694	Mung Bean	10	293.15	393.15	341.19	8.38	0.02
34597694	Mung Bean	10	293.15	393.15	340.80	7.78	0.02
34597694	Mung Bean	10	293.15	393.15	340.97	8.24	0.02
34597694	Mung Bean	10	293.15	393.15	341.80	8.00	0.02
34597694	Mung Bean	10	293.15	393.15	341.70	8.43	0.02
34597694	Mung Bean	10	293.15	393.15	341.38	8.47	0.02
34597694	Mung Bean	10	293.15	393.15	341.29	8.76	0.03
34597694	Mung Bean	10	293.15	393.15	344.50	9.26	0.03
34597694	Mung Bean	10	293.15	393.15	341.99	8.55	0.03
34597694	Mung Bean	10	293.15	393.15	341.75	9.38	0.03
34597694	Mung Bean	10	293.15	393.15	342.31	9.36	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34233245	Lentils	10	298.15	433.15	345.25	0.74	0.00
34233245	Lentils	10	298.15	433.15	344.86	1.07	0.00
34233245	Lentils	10	298.15	433.15	346.09	0.86	0.00
34233245	Lentils	10	298.15	433.15	343.21	0.97	0.00
34689066	Maize/Corn	10		5373.15	350.16	13.15	0.04
34689066	Maize/Corn	10		5373.15	349.81	8.13	0.02
34689066	Maize/Corn	10		5373.15	350.87	11.50	0.03
34689066	Cassava	10		5373.15	347.46	12.65	0.04
34689066	Cassava	10		5373.15	346.65	8.86	0.03
34689066	Cassava	10		5373.15	347.27	10.32	0.03
34896805	Kiwi	10	298.15	388.15	341.05	8.02	0.02
34947195	Rye	10	293.15	383.15	333.95	6.00	0.02
34947195	Rye	10	293.15	383.15	335.95	4.40	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34947195	Rye	10	293.15	383.15	337.15	6.20	0.02
34947195	Rye	10	293.15	383.15	335.25	6.50	0.02
34947195	Rye	10	293.15	383.15	336.35	2.40	0.01
34947195	Rye	10	293.15	383.15	334.45	3.60	0.01
34947195	Rye	10	293.15	383.15	337.75	3.50	0.01
34947195	Rye	10	293.15	383.15	337.65	2.70	0.01
34947195	Rye	10	293.15	383.15	337.95	3.10	0.01
34947195	Rye	10	293.15	383.15	337.05	3.40	0.01
34945648	Millet	10	293.15	473.15	441.54	328.34	0.74
34945648	Millet	10	293.15	473.15	445.78	358.20	0.80
34945648	Millet	10	293.15	473.15	458.14	468.64	1.02
34945648	Millet	10	293.15	473.15	458.83	498.38	1.09
35035927	Maize/Corn	10	303.15	363.15	346.89	2.72	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35035927	Maize/Corn	10	303.15	363.15	348.98	5.10	0.01
35035927	Maize/Corn	10	303.15	363.15	350.03	4.82	0.01
35035927	Maize/Corn	10	303.15	363.15	351.16	3.80	0.01
35035927	Maize/Corn	10	303.15	363.15	349.86	5.32	0.02
35035927	Maize/Corn	10	303.15	363.15	350.34	4.15	0.01
35035927	Maize/Corn	10	303.15	363.15	349.10	4.55	0.01
35035927	Maize/Corn	10	303.15	363.15	351.57	5.40	0.02
35012194	Chestnut	10	293.15	373.15	338.75	9.60	0.03
35012194	Chestnut	10	293.15	373.15	327.25	4.60	0.01
35012194	Chestnut	10	293.15	373.15	322.85	3.70	0.01
35012194	Chestnut	10	293.15	373.15	321.55	2.90	0.01
35012194	Chestnut	10	293.15	373.15	338.15	9.50	0.03
35012194	Chestnut	10	293.15	373.15	339.55	6.90	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35012194	Chestnut	10	293.15	373.15	339.25	5.90	0.02
35053878	Wheat	10	293.15	403.15	329.05	9.80	0.03
35053878	Wheat	10	293.15	403.15	337.95	2.30	0.01
35053878	Wheat	10	293.15	403.15	335.45	1.50	0.00
35053878	Wheat	10	293.15	403.15	334.55	1.60	0.00
35053914	Fonio	5	273.15	388.15	346.65	11.50	0.03
35053914	Millet	5	273.15	388.15	350.13	7.00	0.02
35053914	Sorghum	5	273.15	388.15	347.85	6.50	0.02
35053914	Maize/Corn	5	273.15	388.15	343.22	5.10	0.01
35053914	Rice	5	273.15	388.15	347.83	10.50	0.03
35164131	Potato	10	298.15	373.15	347.15	16.79	0.05
35164131	Potato	10	298.15	373.15	347.35	15.59	0.04
35164131	Potato	10	298.15	373.15	347.22	17.33	0.05

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35164131	Potato	10	298.15	373.15	346.65	17.04	0.05
35164131	Potato	10	298.15	373.15	348.05	16.98	0.05
35164131	Potato	10	298.15	373.15	346.68	17.20	0.05
35164171	Avocado seed	5	303.15	393.15	346.77	6.55	0.02
35164171	Avocado seed	5	303.15	393.15	346.32	5.92	0.02
35164171	Avocado seed	5	303.15	393.15	344.29	11.82	0.03
35164171	Avocado seed	5	303.15	393.15	343.49	13.43	0.04
35160545	Acorn	10	293.15	393.15	357.81	23.40	0.07
35160545	Acorn	10	293.15	393.15	351.51	17.67	0.05
35160545	Acorn	10	293.15	393.15	349.90	18.19	0.05
35160545	Acorn	10	293.15	393.15	346.87	19.79	0.06
35023168	Potato	-263.15	293.15	368.15	340.25	15.07	0.04
35023168	Potato	-263.15	293.15	368.15	340.00	14.10	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35023168	Potato	-263.15	293.15	368.15	338.65	13.66	0.04
35023168	Potato	-263.15	293.15	368.15	339.90	12.55	0.04
35023168	Potato	-263.15	293.15	368.15	338.30	12.54	0.04
35040132	Sweet Potato	10	293.15	423.15	345.00	11.59	0.03
35040132	Sweet Potato	10	293.15	423.15	346.36	3.18	0.01
35040132	Sweet Potato	10	293.15	423.15	346.36	2.75	0.01
35040132	Sweet Potato	10	293.15	423.15	345.70	2.44	0.01
35040132	Sweet Potato	10	293.15	423.15	346.56	1.51	0.00
35198591	Potato	10	303.15	393.15	334.74	12.27	0.04
35198591	Potato	10	303.15	393.15	339.47	9.39	0.03
35198591	Potato	10	303.15	393.15	339.19	7.31	0.02
35198591	Pea	10	303.15	393.15	338.22	6.69	0.02
35198591	Pea	10	303.15	393.15	342.89	8.50	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35198591	Pea	10	303.15	393.15	342.91	9.66	0.03
34750721	Rice	10	303.15	403.15	351.35	9.80	0.03
34750721	Rice	10	303.15	403.15	344.15	9.00	0.03
34750721	Rice	10	303.15	403.15	344.15	7.70	0.02
34750721	Rice	10	303.15	403.15	350.65	9.70	0.03
34750721	Rice	10	303.15	403.15	350.65	10.50	0.03
34750721	Rice	10	303.15	403.15	357.15	6.40	0.02
35335417	Sago	10	303.15	383.15	349.85	11.83	0.03
35335417	Sago	10	303.15	383.15	349.29	11.77	0.03
35335417	Sago	10	303.15	383.15	353.88	10.09	0.03
35335417	Sago	10	303.15	383.15	360.33	1.88	0.01
35335417	Sago	10	303.15	383.15	364.13	1.56	0.00
35335417	Sago	10	303.15	383.15	359.48	1.50	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35369070	Wheat	10	293.15	413.15	336.97	7.38	0.02
35369070	Wheat	10	293.15	413.15	337.19	6.75	0.02
35369070	Wheat	10	293.15	413.15	337.17	7.06	0.02
35369070	Wheat	10	293.15	413.15	337.43	7.17	0.02
35369070	Wheat	10	293.15	413.15	343.39	5.21	0.02
35419013	Wheat				339.17	7.76	0.02
35419013	Wheat				338.99	7.88	0.02
35419013	Wheat				339.15	8.23	0.02
35419013	Wheat				339.05	9.51	0.03
35419013	Wheat				339.16	10.32	0.03
35419013	Wheat				339.15	11.09	0.03
35419013	Wheat				339.15	6.59	0.02
35419013	Wheat				338.94	7.09	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35419013	Wheat				338.95	8.09	0.02
35419013	Wheat				338.32	9.21	0.03
35419013	Wheat				339.15	10.09	0.03
35419013	Wheat				338.35	10.89	0.03
35419013	Wheat				338.48	5.55	0.02
35419013	Wheat				338.47	5.61	0.02
35419013	Wheat				338.11	7.32	0.02
35419013	Wheat				338.15	8.16	0.02
35419013	Wheat				338.44	9.08	0.03
35419013	Wheat				338.45	10.00	0.03
34763187	Oat	1	298.15	363.15	334.35	12.04	0.04
34763187	Oat	1	298.15	363.15	335.28	9.45	0.03
34763187	Oat	1	298.15	363.15	335.99	8.38	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
34763187	Oat	1	298.15	363.15	336.50	5.86	0.02
34763187	Oat	1	298.15	363.15	336.82	5.43	0.02
35519803	Rice	10	313.15	383.15	340.52	11.62	0.03
35519803	Rice	10	313.15	383.15	346.42	13.37	0.04
35519803	Rice	10	313.15	383.15	340.65	11.35	0.03
35519803	Rice	10	313.15	383.15	350.16	13.92	0.04
35519803	Rice	10	313.15	383.15	340.71	10.78	0.03
35519803	Rice	10	313.15	383.15	350.46	14.27	0.04
35519803	Rice	10	313.15	383.15	341.37	10.34	0.03
35519803	Rice	10	313.15	383.15	350.26	11.83	0.03
35519803	Rice	10	313.15	383.15	340.29	10.02	0.03
35519803	Rice	10	313.15	383.15	350.41	12.75	0.04
35519803	Rice	10	313.15	383.15	341.08	10.23	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35519803	Rice	10	313.15	383.15	350.49	13.37	0.04
35684323	Sweet Potato	10	298.15	403.15	338.95	12.60	0.04
35684323	Sweet Potato	10	298.15	403.15	343.05	14.90	0.04
35684323	Sweet Potato	10	298.15	403.15	339.95	14.70	0.04
35684323	Sweet Potato	10	298.15	403.15	345.65	14.70	0.04
35684323	Sweet Potato	10	298.15	403.15	347.15	14.40	0.04
35684323	Sweet Potato	10	298.15	403.15	346.75	16.80	0.05
35684323	Sweet Potato	10	298.15	403.15	353.15	16.20	0.05
35681351	Rice	10	313.15	373.15	339.31	8.41	0.02
35681351	Rice	11	313.15	373.15	341.15	6.11	0.02
35681351	Potato	12	313.15	373.15	336.38	12.69	0.04
35681351	Potato	13	313.15	373.15	339.08	9.69	0.03
35681351	Pea	14	313.15	373.15	340.88	12.41	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35681351	Pea	15	313.15	373.15	344.95	11.55	0.03
35602456	Wheat				333.14	0.71	0.00
35602456	Wheat				331.52	1.34	0.00
35602456	Wheat				330.47	3.40	0.01
35602456	Mixed starch			378.38	0.53	0.00	
35602456	Mixed starch			377.65	1.65	0.00	
35602456	Mixed starch			377.00	2.20	0.01	
35667221	Rice	5	293.15	393.15	341.86	1.63	0.00
35667221	Rice	5	293.15	393.15	349.74	1.12	0.00
35667221	Rice	5	293.15	393.15	341.83	1.77	0.01
35667221	Rice	5	293.15	393.15	350.96	2.02	0.01
35667221	Rice	5	293.15	393.15	342.06	1.59	0.00
35667221	Rice	5	293.15	393.15	349.16	1.84	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35667221	Rice	5	293.15	393.15	342.16	1.90	0.01
35667221	Rice	5	293.15	393.15	348.99	1.83	0.01
35667221	Rice	5	293.15	393.15	344.00	1.90	0.01
35667221	Rice	5	293.15	393.15	350.92	1.68	0.00
35736725	Sorghum	10	293.15	383.15	347.16	8.21	0.02
35736725	Sorghum	10	293.15	383.15	345.71	7.28	0.02
35736725	Sorghum	10	293.15	383.15	353.92	13.38	0.04
35736725	Sorghum	10	293.15	383.15	344.49	5.94	0.02
35736725	Sorghum	10	293.15	383.15	354.15	13.68	0.04
35736725	Sorghum	10	293.15	383.15	345.62	7.02	0.02
35782948	Sweet Potato	10	303.15	383.15	343.34	5.58	0.02
35782948	Sweet Potato	10	303.15	383.15	346.17	4.27	0.01
35782948	Sweet Potato	10	303.15	383.15	349.42	4.99	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35782948	Sweet Potato	10	303.15	383.15	354.19	4.74	0.01
35782948	Sweet Potato	10	303.15	383.15	354.23	3.62	0.01
35782948	Sweet Potato	10	303.15	383.15	356.27	1.85	0.01
35782948	Sweet Potato	10	303.15	383.15	361.55	5.65	0.02
35808669	Pea	10	283.15	423.15	345.20	1.65	0.00
35808669	Pea	10	283.15	423.15	333.55	0.77	0.00
35808669	Pea	10	283.15	423.15	334.25	0.46	0.00
35808669	Pea	10	283.15	423.15	335.45	0.35	0.00
35845782	Rice				355.15	3.42	0.01
35845782	Rice				353.21	7.27	0.02
35845782	Rice				352.78	7.29	0.02
35845782	Rice				356.05	2.08	0.01
35845782	Rice				355.80	7.95	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35845782	Rice				352.03	5.59	0.02
35845782	Rice				355.20	6.44	0.02
35845782	Rice				355.25	5.75	0.02
35845782	Rice				346.61	4.68	0.01
35520387	Wheat	10	293.15	363.15	322.45	0.29	0.00
35520387	Wheat	10	293.15	363.15	321.35	2.74	0.01
35520387	Wheat	10	293.15	363.15	322.15	3.46	0.01
35520387	Wheat	10	293.15	363.15	322.45	3.78	0.01
35520387	Wheat	10	293.15	363.15	322.35	0.30	0.00
35520387	Wheat	10	293.15	363.15	322.65	2.68	0.01
35520387	Wheat	10	293.15	363.15	322.25	3.26	0.01
35520387	Wheat	10	293.15	363.15	322.75	3.44	0.01
35520387	Wheat	10	293.15	363.15	322.05	0.27	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35520387	Wheat	10	293.15	363.15	322.15	2.44	0.01
35520387	Wheat	10	293.15	363.15	322.65	2.80	0.01
35520387	Wheat	10	293.15	363.15	322.35	3.10	0.01
35844929	Sago		283.15	388.15	352.07	13.38	0.04
35844929	Sago		283.15	388.15	350.36	12.40	0.04
35844929	Sago		283.15	388.15	350.50	12.22	0.03
35844929	Sago		283.15	388.15	350.58	11.96	0.03
35844929	Sago		283.15	388.15	350.73	11.92	0.03
35844929	Sago		283.15	388.15	348.90	11.50	0.03
35844929	Sago		283.15	388.15	348.90	11.48	0.03
35844929	Sago		283.15	388.15	349.09	11.31	0.03
35844929	Sago		283.15	388.15	349.15	11.19	0.03
35844929	Sago		283.15	388.15	345.97	10.85	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35844929	Sago		283.15	388.15	345.99	10.64	0.03
35844929	Sago		283.15	388.15	346.20	10.56	0.03
35844929	Sago		283.15	388.15	345.92	10.44	0.03
35885264	Barley	10	295.15	473.15	366.55	7.54	0.02
35885264	Barley	10	295.15	473.15	361.75	2.36	0.01
35885264	Barley	10	295.15	473.15	346.75	3.48	0.01
35885264	Barley	10	295.15	473.15	347.35	5.39	0.02
35885264	Barley	10	295.15	473.15	338.05	7.02	0.02
35885274	Potato	10	298.15	373.15	344.90	11.81	0.03
35885274	Potato	10	298.15	373.15	349.90	4.96	0.01
35885274	Rice	10	298.15	373.15	342.25	5.47	0.02
35885274	Rice	10	298.15	373.15	347.65	4.60	0.01
35885274	Rice	10	298.15	373.15	347.90	8.02	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35885274	Rice	10	298.15	373.15	345.65	3.61	0.01
35885274	Wheat	10	298.15	373.15	336.85	5.93	0.02
35885274	Wheat	10	298.15	373.15	341.15	3.15	0.01
35877514	Wheat	5	293.15	393.15	335.60	5.28	0.02
35877514	Mixed starch	5	293.15	393.15	337.12	3.17	0.01
35877514	Mixed starch	5	293.15	393.15	347.27	2.03	0.01
35658417	Maize/Corn	4	278.15	393.15	340.84	15.97	0.05
35658417	Maize/Corn	4	278.15	393.15	340.93	13.95	0.04
35658417	Maize/Corn	4	278.15	393.15	339.03	12.28	0.04
35658417	Maize/Corn	4	278.15	393.15	328.01	5.58	0.02
35658417	Maize/Corn	4	278.15	393.15	325.74	2.11	0.01
35658417	Maize/Corn	4	278.15	393.15	341.76	14.53	0.04
35658417	Maize/Corn	4	278.15	393.15	325.89	5.78	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35658417	Maize/Corn	4	278.15	393.15	341.40	12.37	0.04
35658417	Maize/Corn	4	278.15	393.15	340.92	11.17	0.03
35658417	Maize/Corn	4	278.15	393.15	338.51	9.29	0.03
35658417	Maize/Corn	4	278.15	393.15	329.14	6.91	0.02
35658417	Maize/Corn	4	278.15	393.15	340.05	7.39	0.02
35658417	Maize/Corn	4	278.15	393.15	326.25	3.25	0.01
35658417	Maize/Corn	4	278.15	393.15	329.17	1.65	0.01
35919363	Rice		298.15	373.15	339.65	15.50	0.05
35919363	Rice		298.15	373.15	339.45	14.60	0.04
35919363	Rice		298.15	373.15	331.85	12.70	0.04
35919363	Rice		298.15	373.15	331.35	13.70	0.04
35919363	Rice		298.15	373.15	332.45	10.10	0.03
35919363	Rice		298.15	373.15	331.85	12.30	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
35954090	Yam				357.93	3.18	0.01
35954090	Yam				356.89	2.27	0.01
35954090	Yam				356.63	2.59	0.01
35954090	Yam				357.72	2.96	0.01
36051290	Maize/Corn	10	303.15	393.15	343.25	7.60	0.02
36051290	Maize/Corn	10	303.15	393.15	344.15	9.20	0.03
36051290	Maize/Corn	10	303.15	393.15	344.25	9.20	0.03
36051290	Maize/Corn	10	303.15	393.15	343.25	6.50	0.02
36051290	Maize/Corn	10	303.15	393.15	345.05	4.00	0.01
36051290	Maize/Corn	10	303.15	393.15	345.05	1.50	0.00
36010489	Rice	10	293.15	373.15	343.48	10.20	0.03
36010489	Rice	10	293.15	373.15	343.72	11.67	0.03
36010489	Rice	10	293.15	373.15	343.85	12.00	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36010489	Rice	10	293.15	373.15	343.85	11.73	0.03
36010489	Rice	10	293.15	373.15	343.08	10.61	0.03
36010489	Rice	10	293.15	373.15	343.32	11.94	0.03
36010489	Rice	10	293.15	373.15	343.58	12.14	0.04
36010489	Rice	10	293.15	373.15	343.65	11.95	0.03
36010489	Rice	10	293.15	373.15	343.75	10.71	0.03
36010489	Rice	10	293.15	373.15	343.58	11.31	0.03
36010489	Rice	10	293.15	373.15	343.32	11.84	0.03
36010489	Rice	10	293.15	373.15	342.35	11.87	0.03
36010489	Rice	10	293.15	373.15	342.72	11.31	0.03
36010489	Rice	10	293.15	373.15	342.18	11.61	0.03
36010489	Rice	10	293.15	373.15	342.15	12.00	0.04
36010489	Rice	10	293.15	373.15	342.05	12.60	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36080172	Rice	10	303.15	383.15	342.17	8.48	0.02
36080172	Rice	10	303.15	383.15	340.51	7.63	0.02
36080172	Rice	10	303.15	383.15	339.91	7.85	0.02
36080172	Rice	10	303.15	383.15	339.90	7.33	0.02
36076770	Wheat	10	293.15	393.15	335.21	6.77	0.02
36076770	Wheat	10	293.15	393.15	337.01	8.26	0.02
36076770	Wheat	10	293.15	393.15	336.11	9.30	0.03
36076770	Wheat	10	293.15	393.15	336.90	7.26	0.02
36076770	Wheat	10	293.15	393.15	336.67	7.56	0.02
36092020	Rice	10	298.15	373.15	339.85	9.47	0.03
36092020	Rice	10	298.15	373.15	337.82	10.92	0.03
36092020	Rice	10	298.15	373.15	342.38	1.68	0.00
36159497	Wheat	10	293.15	393.15	336.19	10.07	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36159497	Wheat	10	293.15	393.15	338.74	8.90	0.03
36159497	Potato	10	293.15	393.15	339.14	15.87	0.05
36159497	Potato	10	293.15	393.15	342.16	15.40	0.05
36159497	Pea	10	293.15	393.15	339.22	10.90	0.03
36159497	Pea	10	293.15	393.15	343.53	9.20	0.03
36140947	Litchi seed	10	303.15	368.15	351.55	9.41	0.03
36140947	Litchi seed	10	303.15	368.15	351.37	6.48	0.02
36140947	Litchi seed	10	303.15	368.15	351.47	7.08	0.02
36140947	Litchi seed	10	303.15	368.15	351.38	7.62	0.02
36140947	Litchi seed	10	303.15	368.15	353.19	6.12	0.02
36140947	Litchi seed	10	303.15	368.15	349.02	7.30	0.02
36140947	Maize/Corn	10	303.15	368.15	343.21	13.43	0.04
36135303	Anchote	5	273.15	383.15	337.26	17.16	0.05

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36135303	Anchote	5	273.15	383.15	338.22	18.01	0.05
36135303	Anchote	5	273.15	383.15	337.01	18.38	0.05
36135303	Anchote	5	273.15	383.15	337.46	16.87	0.05
36135303	Potato	5	273.15	383.15	336.60	18.75	0.06
36135303	Cassava	5	273.15	383.15	343.91	15.44	0.04
36193040	Maize/Corn	5	298.15	393.15	343.25	5.30	0.02
36193040	Maize/Corn	5	298.15	393.15	342.95	6.10	0.02
36193040	Maize/Corn	5	298.15	393.15	346.45	7.80	0.02
36193040	Maize/Corn	5	298.15	393.15	346.85	1.80	0.01
36193040	Maize/Corn	5	298.15	393.15	347.05	1.80	0.01
36193040	Maize/Corn	5	298.15	393.15	350.05	4.00	0.01
36193040	Potato	5	298.15	393.15	341.05	12.50	0.04
36193040	Potato	5	298.15	393.15	340.95	11.90	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36193040	Potato	5	298.15	393.15	346.45	11.90	0.03
36193040	Potato	5	298.15	393.15	343.85	10.40	0.03
36193040	Potato	5	298.15	393.15	344.55	11.00	0.03
36193040	Potato	5	298.15	393.15	350.45	13.70	0.04
36234911	Rice	10	278.15	453.15	339.65	12.50	0.04
36234911	Rice	10	278.15	453.15	356.65	4.20	0.01
36234911	Rice	10	278.15	453.15	355.45	5.20	0.01
36234911	Rice	10	278.15	453.15	368.35	8.90	0.02
36234911	Rice	10	278.15	453.15	363.75	8.30	0.02
36234911	Rice	10	278.15	453.15	361.85	6.00	0.02
36234911	Rice	10	278.15	453.15	360.15	6.80	0.02
36234911	Rice	10	278.15	453.15	366.85	8.40	0.02
36234911	Rice	10	278.15	453.15	365.35	8.30	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36234911	Rice	10	278.15	453.15	365.35	9.90	0.03
36236001	Wheat	1	283.15	393.15	332.75	9.70	0.03
36236001	Chickpea	1	283.15	393.15	343.55	12.60	0.04
36236001	Quinoa	1	283.15	393.15	341.35	8.40	0.02
36117277	Ginkgo seed	10	293.15	473.15	345.44	13.04	0.04
36117277	Ginkgo seed	10	293.15	473.15	343.83	11.33	0.03
36230145	Lotus seed	10	293.15	523.15	340.45	152.70	0.45
36230145	Lotus seed	10	293.15	523.15	347.64	177.91	0.51
36230145	Lotus seed	10	293.15	523.15	349.93	187.47	0.54
36230145	Lotus seed	10	293.15	523.15	356.73	214.16	0.60
37430936	Wheat	10	293.15	373.15	335.35	19.14	0.06
37430936	Wheat	10	293.15	373.15	334.85	17.13	0.05
37430936	Wheat	10	293.15	373.15	335.06	15.24	0.05

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37430936	Wheat	10	293.15	373.15	335.89	7.15	0.02
36354601	Maize/Corn	10	298.15	423.15	346.60	10.85	0.03
36354601	Maize/Corn	10	298.15	423.15	347.86	9.77	0.03
36354601	Maize/Corn	10	298.15	423.15	348.51	9.54	0.03
36354601	Maize/Corn	10	298.15	423.15	349.25	9.11	0.03
36354601	Maize/Corn	10	298.15	423.15	349.87	8.79	0.03
36007697	Potato	5	298.15	348.15	332.40	3.47	0.01
36007697	Potato	5	298.15	348.15	333.14	4.01	0.01
36007697	Potato	5	298.15	348.15	332.92	3.84	0.01
36007697	Potato	5	298.15	348.15	333.00	3.53	0.01
36007697	Potato	5	298.15	348.15	333.03	3.30	0.01
36007697	Potato	5	298.15	348.15	333.57	3.21	0.01
36360123	Barley	10	298.15	393.15	333.62	6.41	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36360123	Barley	10	298.15	393.15	333.77	5.24	0.02
36360123	Barley	10	298.15	393.15	339.81	4.92	0.01
36360123	Barley	10	298.15	393.15	344.79	3.40	0.01
36360123	Barley	10	298.15	393.15	335.13	5.58	0.02
36360123	Barley	10	298.15	393.15	344.61	3.91	0.01
36360123	Barley	10	298.15	393.15	345.82	1.31	0.00
36360123	Barley	10	298.15	393.15	335.32	5.98	0.02
36360123	Barley	10	298.15	393.15	353.79	1.14	0.00
36360123	Barley	10	298.15	393.15	353.84	0.43	0.00
36407592	Maize/Corn	10	298.15	373.15	349.05	7.40	0.02
36407592	Maize/Corn	10	298.15	373.15	351.05	6.80	0.02
36407592	Maize/Corn	10	298.15	373.15	352.95	7.30	0.02
36407592	Maize/Corn	10	298.15	373.15	351.55	6.80	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36407592	Maize/Corn	10	298.15	373.15	346.95	7.10	0.02
36407592	Maize/Corn	10	298.15	373.15	344.25	6.40	0.02
36407592	Maize/Corn	10	298.15	373.15	344.45	7.90	0.02
36407592	Maize/Corn	10	298.15	373.15	342.55	6.30	0.02
36429276	Wheat	10	303.15	373.15	336.82	5.17	0.02
36429276	Wheat	10	303.15	373.15	337.09	5.16	0.02
36429276	Wheat	10	303.15	373.15	336.98	5.25	0.02
36429276	Wheat	10	303.15	373.15	338.98	6.80	0.02
36429276	Wheat	10	303.15	373.15	338.35	6.86	0.02
36429282	Sorghum	10	303.15	373.15	340.53	9.68	0.03
36429282	Sorghum	10	303.15	373.15	340.34	9.86	0.03
36429282	Sorghum	10	303.15	373.15	343.52	10.23	0.03
36429282	Sorghum	10	303.15	373.15	342.21	10.47	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36429282	Sorghum	10	303.15	373.15	340.61	9.98	0.03
36429282	Sorghum	10	303.15	373.15	340.30	10.77	0.03
36429282	Sorghum	10	303.15	373.15	341.57	11.50	0.03
36429282	Sorghum	10	303.15	373.15	341.39	10.32	0.03
36429282	Sorghum	10	303.15	373.15	340.26	8.62	0.03
36429282	Sorghum	10	303.15	373.15	339.94	8.96	0.03
36429282	Sorghum	10	303.15	373.15	341.28	9.39	0.03
36429282	Sorghum	10	303.15	373.15	340.99	9.18	0.03
36429282	Sorghum	10	303.15	373.15	340.13	9.94	0.03
36429282	Sorghum	10	303.15	373.15	340.74	9.94	0.03
36429282	Sorghum	10	303.15	373.15	341.56	10.04	0.03
36429282	Sorghum	10	303.15	373.15	341.46	9.94	0.03
36429307	Cassava	5	298.15	403.15	341.19	3.75	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36429307	Cassava	5	298.15	403.15	341.41	3.77	0.01
36429307	Cassava	5	298.15	403.15	341.60	3.87	0.01
36429307	Cassava	5	298.15	403.15	341.82	3.73	0.01
36429307	Cassava	5	298.15	403.15	341.41	4.01	0.01
36429307	Cassava	5	298.15	403.15	341.62	3.70	0.01
36429307	Cassava	5	298.15	403.15	340.98	3.91	0.01
36429307	Cassava	5	298.15	403.15	341.36	2.94	0.01
36429307	Cassava	5	298.15	403.15	342.99	2.23	0.01
36429307	Cassava	5	298.15	403.15	341.91	4.03	0.01
36429307	Cassava	5	298.15	403.15	341.59	3.87	0.01
36429307	Cassava	5	298.15	403.15	342.34	2.89	0.01
36429307	Cassava	5	298.15	403.15	344.06	1.40	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36531376	Common Buckwheat	10		383.15	342.41	10.64	0.03
36531376	Common Buckwheat	10		383.15	341.31	9.14	0.03
36531376	Common Buckwheat	10		383.15	342.42	10.96	0.03
36531376	Common Buckwheat	10		383.15	342.97	10.68	0.03
36531376	Common Buckwheat	10		383.15	341.90	8.96	0.03
36531376	Common Buckwheat	10		383.15	342.26	10.36	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36531376	Common Buckwheat	10		383.15	343.13	7.55	0.02
36531376	Common Buckwheat	10		383.15	342.56	6.38	0.02
36531376	Common Buckwheat	10		383.15	343.65	8.46	0.02
36531376	Common Buckwheat	10		383.15	342.66	7.71	0.02
36531376	Common Buckwheat	10		383.15	341.60	6.75	0.02
36531376	Common Buckwheat	10		383.15	342.38	8.82	0.03
36545465	Banana	10	283.15	373.15	349.23	5.39	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36545465	Banana	10	283.15	373.15	350.68	8.12	0.02
36545465	Banana	10	283.15	373.15	351.54	7.53	0.02
36545465	Banana	10	283.15	373.15	352.37	10.57	0.03
36545465	Banana	10	283.15	373.15	355.70	11.79	0.03
36553821	Rice				341.03	9.63	0.03
36553821	Rice				340.79	10.33	0.03
36553821	Rice				352.33	12.55	0.04
36553821	Rice				351.96	13.54	0.04
36553821	Rice				342.24	9.55	0.03
36553821	Rice				342.25	10.51	0.03
36553821	Rice				341.92	11.53	0.03
36553821	Rice				342.02	12.44	0.04
36553821	Rice				342.69	9.78	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36553821	Rice				342.47	11.02	0.03
36553821	Rice				338.90	10.81	0.03
36553821	Rice				338.79	11.74	0.03
36217316	Maize/Corn			346.45	13.60	0.04	
36217316	Maize/Corn			344.65	12.80	0.04	
36217316	Maize/Corn			345.75	12.60	0.04	
36217316	Maize/Corn			346.85	10.00	0.03	
36217316	Maize/Corn			345.85	12.60	0.04	
36217316	Maize/Corn			345.75	12.10	0.03	
36217316	Maize/Corn			345.95	12.30	0.04	
36217316	Maize/Corn			345.65	10.40	0.03	
36712512	Sorghum	10	303.15	393.15	351.85	10.40	0.03
36712512	Sorghum	10	303.15	393.15	353.95	9.77	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36712512	Sorghum	10	303.15	393.15	351.85	12.40	0.04
36712512	Sorghum	10	303.15	393.15	349.65	12.92	0.04
36712512	Sorghum	10	303.15	393.15	350.35	8.78	0.03
36712512	Sorghum	10	303.15	393.15	350.35	11.00	0.03
36712512	Sorghum	10	303.15	393.15	351.35	10.52	0.03
36712512	Sorghum	10	303.15	393.15	349.55	10.35	0.03
36712512	Sorghum	10	303.15	393.15	349.45	10.23	0.03
36712512	Sorghum	10	303.15	393.15	349.55	9.99	0.03
36712512	Sorghum	10	303.15	393.15	346.75	8.21	0.02
36712512	Sorghum	10	303.15	393.15	347.85	8.32	0.02
36712512	Sorghum	10	303.15	393.15	347.15	8.39	0.02
36712512	Sorghum	10	303.15	393.15	348.25	9.26	0.03
36712512	Sorghum	10	303.15	393.15	347.45	9.50	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36712512	Sorghum	10	303.15	393.15	346.75	9.43	0.03
36712512	Sorghum	10	303.15	393.15	346.85	10.33	0.03
36712512	Sorghum	10	303.15	393.15	348.15	9.86	0.03
36712512	Sorghum	10	303.15	393.15	346.85	9.63	0.03
36712512	Sorghum	10	303.15	393.15	347.65	9.28	0.03
36712512	Sorghum	10	303.15	393.15	349.15	8.69	0.02
36712512	Sorghum	10	303.15	393.15	347.85	8.33	0.02
36712512	Sorghum	10	303.15	393.15	348.15	10.15	0.03
36712512	Sorghum	10	303.15	393.15	348.95	9.31	0.03
36712512	Sorghum	10	303.15	393.15	350.05	9.62	0.03
36712512	Sorghum	10	303.15	393.15	350.65	10.62	0.03
36712512	Sorghum	10	303.15	393.15	349.45	9.43	0.03
36712512	Sorghum	10	303.15	393.15	347.95	10.17	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36712512	Sorghum	10	303.15	393.15	350.25	7.87	0.02
36712512	Sorghum	10	303.15	393.15	346.65	8.67	0.03
36771875	Rice	10	303.15	363.15	346.49	11.89	0.03
36771875	Rice	10	303.15	363.15	338.79	10.74	0.03
36771875	Rice	10	303.15	363.15	341.29	11.65	0.03
36771875	Rice	10	303.15	363.15	340.70	14.28	0.04
36766136	Wheat	1	283.15	393.15	381.75	0.30	0.00
36766136	Wheat	1	283.15	393.15	381.55	0.33	0.00
36766136	Wheat	1	283.15	393.15	377.05	0.29	0.00
36766136	Wheat	1	283.15	393.15	369.75	0.38	0.00
36766136	Wheat	1	283.15	393.15	336.95	8.20	0.02
36766136	Wheat	1	283.15	393.15	336.65	8.40	0.02
36766136	Wheat	1	283.15	393.15	336.65	7.80	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36766136	Wheat	1	283.15	393.15	335.85	7.60	0.02
36766136	Wheat	1	283.15	393.15	333.45	6.00	0.02
36766136	Wheat	1	283.15	393.15	334.65	6.90	0.02
36766136	Wheat	1	283.15	393.15	334.65	6.40	0.02
36766136	Wheat	1	283.15	393.15	333.45	6.70	0.02
36766136	Wheat	1	283.15	393.15	334.05	7.90	0.02
36766136	Wheat	1	283.15	393.15	334.25	7.50	0.02
36766136	Wheat	1	283.15	393.15	341.05	8.60	0.03
36766136	Wheat	1	283.15	393.15	341.05	8.70	0.03
36766136	Wheat	1	283.15	393.15	339.05	8.30	0.02
36766136	Wheat	1	283.15	393.15	340.15	8.50	0.02
36766136	Wheat	1	283.15	393.15	353.05	0.21	0.00
36766136	Wheat	1	283.15	393.15	378.25	0.11	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36766136	Wheat	1	283.15	393.15	379.05	0.40	0.00
36766136	Wheat	1	283.15	393.15	365.85	1.20	0.00
36766136	Wheat	1	283.15	393.15	375.85	0.50	0.00
36785541	Isatis indigotica Fort.	10	303.15	393.15	341.46	4.33	0.01
36785541	Maize/Corn	10	303.15	393.15	343.58	10.08	0.03
36900466	Buckwheat	10	293.15	393.15	340.32	9.44	0.03
36900466	Buckwheat	10	293.15	393.15	344.26	7.09	0.02
36900466	Buckwheat	10	293.15	393.15	339.27	7.03	0.02
36900466	Buckwheat	10	293.15	393.15	341.65	5.89	0.02
36900466	Buckwheat	10	293.15	393.15	339.26	6.61	0.02
36900466	Buckwheat	10	293.15	393.15	341.13	5.24	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36704896	Kudzu root	10	293.15	373.15	343.48	1.77	0.01
36704896	Kudzu root	10	293.15	373.15	343.14	1.54	0.00
36704896	Kudzu root	10	293.15	373.15	346.34	2.07	0.01
36900557	Rice	5	298.15	368.15	342.15	7.70	0.02
36900557	Rice	5	298.15	368.15	340.55	2.50	0.01
36981276	Maize/Corn	10	283.15	373.15	342.57	6.62	0.02
36981276	Maize/Corn	10	283.15	373.15	343.99	5.43	0.02
36981276	Maize/Corn	10	283.15	373.15	343.38	5.52	0.02
36981276	Maize/Corn	10	283.15	373.15	342.12	5.27	0.02
36981276	Maize/Corn	10	283.15	373.15	340.70	5.68	0.02
36981276	Maize/Corn	10	283.15	373.15	343.13	7.52	0.02
36981276	Maize/Corn	10	283.15	373.15	342.95	7.66	0.02
36981276	Maize/Corn	10	283.15	373.15	342.33	6.78	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36981276	Maize/Corn	10	283.15	373.15	341.00	6.66	0.02
36981276	Maize/Corn	10	283.15	373.15	344.15	6.78	0.02
36981276	Maize/Corn	10	283.15	373.15	343.97	5.01	0.01
36981276	Maize/Corn	10	283.15	373.15	342.53	6.92	0.02
36981276	Maize/Corn	10	283.15	373.15	340.67	5.98	0.02
36981276	Maize/Corn	10	283.15	373.15	345.40	9.49	0.03
36981276	Maize/Corn	10	283.15	373.15	346.28	9.08	0.03
36981276	Maize/Corn	10	283.15	373.15	344.09	7.21	0.02
36981276	Maize/Corn	10	283.15	373.15	345.13	8.24	0.02
36981276	Maize/Corn	10	283.15	373.15	343.72	6.65	0.02
36981276	Maize/Corn	10	283.15	373.15	346.12	8.73	0.03
36981276	Maize/Corn	10	283.15	373.15	345.66	8.00	0.02
36981276	Maize/Corn	10	283.15	373.15	344.80	7.23	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36981276	Maize/Corn	10	283.15	373.15	343.84	6.87	0.02
36981276	Maize/Corn	10	283.15	373.15	344.36	7.10	0.02
36981276	Maize/Corn	10	283.15	373.15	346.06	6.69	0.02
36981276	Maize/Corn	10	283.15	373.15	345.20	7.35	0.02
36981276	Maize/Corn	10	283.15	373.15	343.67	6.88	0.02
36845522	Maize/Corn	10	293.15	373.15	338.85	15.20	0.04
36845522	Maize/Corn	10	293.15	373.15	336.45	13.80	0.04
36845522	Maize/Corn	10	293.15	373.15	339.75	10.60	0.03
36845522	Maize/Corn	10	293.15	373.15	338.35	10.10	0.03
36845522	Maize/Corn	10	293.15	373.15	334.65	15.50	0.05
36845522	Maize/Corn	10	293.15	373.15	336.85	12.80	0.04
36845522	Maize/Corn	10	293.15	373.15	338.65	10.90	0.03
36845522	Maize/Corn	10	293.15	373.15	337.45	10.60	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36845522	Maize/Corn	10	293.15	373.15	337.85	17.40	0.05
36845522	Maize/Corn	10	293.15	373.15	338.45	12.00	0.04
36845522	Maize/Corn	10	293.15	373.15	337.45	15.30	0.05
36845522	Maize/Corn	10	293.15	373.15	338.65	13.60	0.04
36845522	Maize/Corn	10	293.15	373.15	333.45	17.60	0.05
36845522	Maize/Corn	10	293.15	373.15	333.65	13.30	0.04
36845522	Maize/Corn	10	293.15	373.15	338.25	13.10	0.04
36845522	Maize/Corn	10	293.15	373.15	337.05	14.20	0.04
36880577	Rice	10	293.15	373.15	341.20	2.30	0.01
36880577	Rice	10	293.15	373.15	340.11	2.70	0.01
36880577	Rice	10	293.15	373.15	340.88	2.41	0.01
36880577	Rice	10	293.15	373.15	340.61	2.29	0.01
36880577	Rice	10	293.15	373.15	340.60	2.30	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
36880577	Rice	10	293.15	373.15	340.67	2.36	0.01
36880577	Rice	10	293.15	373.15	342.05	3.05	0.01
37175311	Taro	10	298.15	368.15	333.19	5.73	0.02
37175311	Taro	10	298.15	368.15	335.30	5.47	0.02
37175311	Taro	10	298.15	368.15	335.09	5.43	0.02
37175311	Taro	10	298.15	368.15	336.30	5.41	0.02
37175311	Taro	10	298.15	368.15	336.59	5.15	0.02
37175311	Taro	10	298.15	368.15	336.61	4.81	0.01
37175311	Taro	10	298.15	368.15	336.58	4.52	0.01
37234552	Barley	10	303.15	393.15	332.75	7.70	0.02
37234552	Barley	10	303.15	393.15	330.65	7.50	0.02
37234552	Barley	10	303.15	393.15	329.75	7.40	0.02
37234552	Barley	10	303.15	393.15	328.75	7.30	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37234552	Barley	10	303.15	393.15	327.65	6.50	0.02
37238846	Pineapple	10	298.15	373.15	359.68	17.24	0.05
37238846	Cassava	10	298.15	373.15	341.74	15.48	0.05
37238846	Maize/Corn	10	298.15	373.15	347.23	14.33	0.04
37238846	Rice	10	298.15	373.15	349.39	11.12	0.03
36308756	Euryale ferox Salisb. seed		349.75	12.64	0.04		
37297492	Sorghum	5	283.15	413.15	346.50	1.13	0.00
37297492	Sorghum	5	283.15	413.15	346.55	2.15	0.01
37404857	Banana	10	313.15	393.15	354.82	15.19	0.04
37404857	Banana	10	313.15	393.15	356.89	12.75	0.04
37404857	Banana	10	313.15	393.15	356.15	12.84	0.04
37404857	Banana	10	313.15	393.15	357.60	13.72	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37404857	Banana	10	313.15	393.15	355.49	12.01	0.03
37444251	Mung Bean	10	303.15	373.15	341.94	17.43	0.05
37444251	Pea	10	303.15	373.15	341.81	15.00	0.04
37444251	Common Vetch	10	303.15	373.15	340.74	20.17	0.06
37219380	Pea	10	293.15	393.15	335.79	7.83	0.02
37219380	Pea	10	293.15	393.15	336.57	7.01	0.02
37219380	Pea	10	293.15	393.15	337.01	6.71	0.02
37219380	Pea	10	293.15	393.15	337.14	5.98	0.02
37219380	Pea	10	293.15	393.15	337.67	5.55	0.02
37457165	Potato	10	303.15	443.15	342.53	5.44	0.02
37457165	Potato	10	303.15	443.15	342.22	5.68	0.02
37457165	Potato	10	303.15	443.15	341.43	8.17	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37457165	Potato	10	303.15	443.15	342.42	7.36	0.02
37444339	Rice	10	303.15	368.15	341.85	6.88	0.02
37444339	Rice	10	303.15	368.15	342.08	7.51	0.02
37444339	Rice	10	303.15	368.15	342.32	7.67	0.02
37444339	Rice	10	303.15	368.15	341.25	7.12	0.02
37444339	Rice	10	303.15	368.15	341.72	7.31	0.02
37444339	Rice	10	303.15	368.15	342.12	7.48	0.02
37444339	Rice	10	303.15	368.15	341.32	6.83	0.02
37444339	Rice	10	303.15	368.15	341.62	7.07	0.02
37444339	Rice	10	303.15	368.15	342.18	7.27	0.02
37444339	Rice	10	303.15	368.15	342.25	6.96	0.02
37444339	Rice	10	303.15	368.15	342.45	7.14	0.02
37444339	Rice	10	303.15	368.15	342.55	7.36	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37560662	Rice	10	298.15	383.15	343.75	5.00	0.01
37560662	Maize/Corn	10	298.15	383.15	347.45	2.80	0.01
37560662	Cassava	10	298.15	383.15	342.85	10.10	0.03
37560662	Quinoa	10	298.15	383.15	363.45	2.10	0.01
37560662	Quinoa	10	298.15	383.15	355.25	0.03	0.00
37560662	Quinoa	10	298.15	383.15	347.45	0.70	0.00
37560662	Quinoa	10	298.15	383.15	345.65	0.50	0.00
37560662	Quinoa	10	298.15	383.15	347.85	0.90	0.00
37560662	Quinoa	10	298.15	383.15	348.25	1.20	0.00
37560662	Quinoa	10	298.15	383.15	347.05	0.37	0.00
37560662	Quinoa	10	298.15	383.15	348.55	0.46	0.00
37560662	Quinoa	10	298.15	383.15	346.85	0.54	0.00
37560662	Quinoa	10	298.15	383.15	348.65	0.50	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37560662	Quinoa	10	298.15	383.15	349.15	0.72	0.00
37628008	Millet	10	313.15	393.15	344.83	15.94	0.05
37628008	Millet	10	313.15	393.15	345.46	18.26	0.05
37628008	Millet	10	313.15	393.15	346.14	17.47	0.05
37628008	Millet	10	313.15	393.15	345.22	16.25	0.05
37628008	Millet	10	313.15	393.15	342.97	14.02	0.04
37628008	Millet	10	313.15	393.15	342.89	14.76	0.04
37628008	Millet	10	313.15	393.15	343.06	15.04	0.04
37628008	Millet	10	313.15	393.15	342.09	14.25	0.04
37628098	Rice	10	308.15	383.15	340.22	5.75	0.02
37628098	Rice	10	308.15	383.15	339.17	7.85	0.02
37628098	Rice	10	308.15	383.15	337.83	8.21	0.02
37628098	Rice	10	308.15	383.15	342.69	4.12	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37652318	Amaranth	10	288.15	363.15	334.75	18.60	0.06
37652318	Amaranth	10	288.15	363.15	334.75	17.50	0.05
37652318	Amaranth	10	288.15	363.15	333.55	17.80	0.05
37652318	Amaranth	10	288.15	363.15	329.65	16.90	0.05
37652318	Amaranth	10	288.15	363.15	335.75	17.90	0.05
37652318	Amaranth	10	288.15	363.15	335.35	17.50	0.05
37652318	Amaranth	10	288.15	363.15	335.05	17.20	0.05
37685196	Mung Bean	10	293.15	393.15	363.06	1.32	0.00
37685196	Mung Bean	10	293.15	393.15	364.12	1.28	0.00
37685196	Kidney bean	10	293.15	393.15	354.53	2.14	0.01
37685196	Kidney bean	10	293.15	393.15	354.55	1.66	0.00
37685196	Adzuki bean	10	293.15	393.15	351.38	2.35	0.01
37685196	Adzuki bean	10	293.15	393.15	352.10	2.28	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37754438	Acorn	10	298.15	423.15	336.05	12.70	0.04
37754438	Acorn	10	298.15	423.15	335.45	11.90	0.04
37754438	Acorn	10	298.15	423.15	343.65	4.30	0.01
37754438	Acorn	10	298.15	423.15	336.95	10.90	0.03
37754438	Acorn	10	298.15	423.15	346.85	20.80	0.06
37754438	Acorn	10	298.15	423.15	336.95	14.90	0.04
37754438	Acorn	10	298.15	423.15	342.65	9.70	0.03
37754438	Acorn	10	298.15	423.15	339.65	4.30	0.01
37764445	Wheat	10	308.15	368.15	334.45	1.53	0.00
37764445	Wheat	10	308.15	368.15	334.53	1.54	0.00
37764445	Wheat	10	308.15	368.15	334.68	1.55	0.00
37764445	Wheat	10	308.15	368.15	334.74	1.56	0.00
37764445	Wheat	10	308.15	368.15	334.80	1.57	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37764445	Wheat	10	308.15	368.15	334.81	1.58	0.00
37764445	Wheat	10	308.15	368.15	335.49	1.58	0.00
37764445	Wheat	10	308.15	368.15	336.36	1.60	0.00
37764445	Wheat	10	308.15	368.15	337.35	1.65	0.00
37764445	Wheat	10	308.15	368.15	339.35	1.66	0.00
37810947	Wild Yam	5	293.15	373.15	333.37	0.54	0.00
37780235	Rice	10	303.15	383.15	350.22	8.05	0.02
37780235	Rice	10	303.15	383.15	350.78	8.36	0.02
37780235	Rice	10	303.15	383.15	349.01	12.20	0.03
37780235	Rice	10	303.15	383.15	348.76	13.16	0.04
37780235	Rice	10	303.15	383.15	349.86	13.96	0.04
37780235	Rice	10	303.15	383.15	358.49	5.33	0.01
37780235	Rice	10	303.15	383.15	359.36	4.87	0.01

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37780235	Rice	10	303.15	383.15	356.78	10.18	0.03
37780235	Rice	10	303.15	383.15	356.59	8.80	0.02
37780235	Rice	10	303.15	383.15	355.89	1.90	0.01
37780273	Oat				337.05	5.65	0.02
37780273	Oat				336.43	5.92	0.02
37780273	Oat				336.19	5.58	0.02
37780273	Oat				335.77	5.56	0.02
37780273	Oat				335.73	5.87	0.02
37780292	Rice	10	293.15	373.15	342.65	8.10	0.02
37780292	Rice	10	293.15	373.15	342.55	7.90	0.02
37780292	Rice	10	293.15	373.15	342.35	7.80	0.02
37780292	Rice	10	293.15	373.15	342.75	7.70	0.02
37780292	Rice	10	293.15	373.15	342.85	7.30	0.02

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37780292	Rice	10	293.15	373.15	342.55	7.10	0.02
37780292	Rice	10	293.15	373.15	342.55	6.90	0.02
37781055	Maize/Corn	298.15	373.15	341.85	14.00	0.04	
37781055	Maize/Corn	298.15	373.15	343.15	12.30	0.04	
37781055	Maize/Corn	298.15	373.15	341.05	14.00	0.04	
37781055	Maize/Corn	298.15	373.15	340.95	8.70	0.03	
37781055	Maize/Corn	298.15	373.15	324.35	2.30	0.01	
37781055	Maize/Corn	298.15	373.15	343.15	12.30	0.04	
37781055	Maize/Corn	298.15	373.15	340.35	12.90	0.04	
37781055	Maize/Corn	298.15	373.15	341.95	13.30	0.04	
37781055	Maize/Corn	298.15	373.15	335.55	11.40	0.03	
37781055	Maize/Corn	298.15	373.15	341.15	9.10	0.03	
37781055	Maize/Corn	298.15	373.15	334.65	0.90	0.00	

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
37781055	Maize/Corn	298.15	373.15	345.25	15.10	0.04	
37781055	Maize/Corn	298.15	373.15	345.25	15.70	0.05	
37781055	Maize/Corn	298.15	373.15	344.05	13.00	0.04	
37781055	Maize/Corn	298.15	373.15	340.05	11.90	0.03	
37781055	Maize/Corn	298.15	373.15	340.35	12.90	0.04	
37781055	Maize/Corn	298.15	373.15	336.35	11.60	0.03	
37781055	Maize/Corn	298.15	373.15	343.95	12.70	0.04	
37781055	Maize/Corn	298.15	373.15	338.15	11.70	0.03	
37781055	Maize/Corn	298.15	373.15	343.75	15.70	0.05	
37781055	Maize/Corn	298.15	373.15	346.35	18.30	0.05	
37437674	Avocado seed			348.43	8.55	0.02	
37247716	Potato				343.41	1.55	0.00
33916867	Wheat	10	293.15	373.15	338.68	0.69	0.00

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
33916867	Wheat	10	293.15	373.15	350.37	5.00	0.01
30726578	Maize/Corn	5	298.15	423.15	329.55	0.14	0.00
30726578	Maize/Corn	5	298.15	423.15	338.65	0.67	0.00
30726578	Maize/Corn	5	298.15	423.15	333.05	0.48	0.00
30726578	Maize/Corn	5	298.15	423.15	335.45	0.42	0.00
30726578	Maize/Corn	5	298.15	423.15	350.95	0.95	0.00
30726578	Maize/Corn	5	298.15	423.15	350.55	0.99	0.00
30726578	Maize/Corn	5	298.15	423.15	338.75	0.47	0.00
24488699	Maize/Corn	5	293.15	393.15	344.25	14.20	0.04
24488699	Maize/Corn	5	293.15	393.15	348.15	15.00	0.04
24488699	Maize/Corn	5	293.15	393.15	346.55	14.40	0.04
24488699	Maize/Corn	5	293.15	393.15	344.95	13.90	0.04
24488699	Maize/Corn	5	293.15	393.15	344.55	14.80	0.04

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
24488699	Maize/Corn	5	293.15	393.15	343.25	15.60	0.05
24488699	Maize/Corn	5	293.15	393.15	346.75	16.90	0.05
24488699	Maize/Corn	5	293.15	393.15	347.45	15.90	0.05
24488699	Maize/Corn	5	293.15	393.15	344.85	15.60	0.05
24488699	Maize/Corn	5	293.15	393.15	344.85	15.30	0.04
24488699	Maize/Corn	5	293.15	393.15	345.85	15.80	0.05
24488699	Maize/Corn	5	293.15	393.15	351.95	18.20	0.05
24488699	Maize/Corn	5	293.15	393.15	359.25	15.60	0.04
24488699	Maize/Corn	5	293.15	393.15	366.05	10.40	0.03
24488699	Maize/Corn	5	293.15	393.15	362.85	11.90	0.03
24488699	Maize/Corn	5	293.15	393.15	353.65	13.20	0.04
24488699	Maize/Corn	5	293.15	393.15	356.15	15.70	0.04
24488699	Maize/Corn	5	293.15	393.15	362.95	12.40	0.03

PMID	Starch Source	Heating rate (degree C/min)	DSC Start Temperature (K)	DSC End Temperature (K)	*T*p (K)	Enthalpy (J/g)	Entropy (J/g/K)
24488699	Maize/Corn	5	293.15	393.15	366.95	9.40	0.03
24488699	Maize/Corn	5	293.15	393.15	368.75	8.40	0.02
24488699	Maize/Corn	5	293.15	393.15	366.95	9.50	0.03
24488699	Maize/Corn	5	293.15	393.15	363.35	12.00	0.03
24488699	Maize/Corn	5	293.15	393.15	366.95	9.40	0.03
24488699	Maize/Corn	5	293.15	393.15	368.65	6.00	0.02
24488699	Maize/Corn	5	293.15	393.15	367.15	7.60	0.02