

## **Starch: Sources, uses and properties**

Starch is a **polysaccharide** which upon hydrolysis releases **glucose**. Most of the starches and starchy foods used in food preparation are obtained from cereals (rice, wheat, maida, sago, maize, and barley), roots (cassava, tapioca, arrowroot) and tubers (potatoes, sweet potatoes). Starch is present in small particles known as **granules**.

**Starch is made up of two fractions**

**Amylose**

**Amylopectin**

The **amylose fraction** of starch is composed of **straight-chain** structure, while the **amylopectin fraction** has a **branched chain** configuration.

Amylose contributes **gelling** characteristics to the cooked and cooled starch mixtures.

Amylopectin provides **cohesive or thickening property** but does not usually contribute to gel formation.

## Uses

In food preparation, starch is used either in the pure form (arrowroot starch, corn starch) or as cereal flour in which starch is mixed with other components (wheat flour, rice flour, corn flour, bajra flour). Cereal flours contain not only starch but protein, fat, and fiber also. Starch accounts for 60-70 per cent of the flour. Starch may be used as:

- **Thickening agents** as in soups, white sauces, and dals.
- **Binding agents**, e.g., Bengal gram flour is used to coat cutlets, bhajias etc.
- To form **moulded gels**, e.g. Corn starch puddings and custards.

## Properties of starch

The starch granule is completely **insoluble in cold water**. However, when a mixture of starch and water is cooked, a starch paste is formed. The starch granules absorb water, swell in size and as the temperature is increased they burst.

## In preparation

Starch dextrinises when roasted, with change in colour, flavour, and texture. In the presence of water, absorbs water, swells, thickens and gelatinizes. Starch gels on ageing, weep with discharge of trapped water.

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## **References**

Mudambi, Sumati R., Rao, Shalini M., Rajagopal, M.V. 2009. Food Science. New Age International Limited, New Delhi.

Swaminathan, M. 1985. Essentials of Food and Nutrition, Vol.I&II, Second Edition, Madras.