

is mainly processed, i.e. refined, neutralized, bleached, and deodorized, which is called RBD (refined, bleached, and deodorized) palm oil and does not contain carotenoids. Many industrial food applications of palm oil use fractionated components of palm oil (stearin, olein). Cocoa butter, named confectionery fat, is the fat from cocoa beans, which is solid at room temperature. The specific feature of this fat is the ability to crystallize in six different polymorphic forms, while the best form melts at body temperature, giving a pleasant, cooling sensation in the mouth.

2.9 HONEY

Honey is produced by honeybees from the sugary secretions of plants (floral nectar) or from secretions of other insects (such as honeydew). Bees suck up nectar, store it in their honey sac, and enrich it with some enzymes. Honey is essentially an oversaturated aqueous solution of inverted sugar (glucose and fructose), very hygroscopic and sticky with a density of about 1.4 g/cm³. It also contains a very complex mixture of other carbohydrates, several enzymes (for instance, peroxidases), amino and organic acids, aroma substances, pigments, waxes, and pollen grains. Fructose (30–44%) and glucose (25–40%) are the predominant sugars in honey. Other monosaccharides have not been found. However, more than 20 di- and oligosaccharides have been identified, with maltose predominating, followed by kojibiose. The composition of disaccharides depends largely on the plants, from which the honey was derived. The water content of honey should be less than 20%, otherwise, it can be readily fermented by osmophilic yeasts. The crystallization of honey is influenced mainly by the ratio of two main sugars, glucose and fructose, which varies depending on the assortment of honey. Glucose, due to its low solubility in water, accelerates crystallization, while fructose slows it down, and it is 4.4 times more soluble in water. Honey with a high glucose/fructose ratio crystallizes more rapidly (rapeseed and sunflower honey), while honey with a lower glucose/fructose ratio does so slowly (acacia, lime).

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