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Editorial

# Melanins in Foods and Their Bioactive Activity

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Melanin is a kind of macromolecule, which normally contains aromatic rings. Its content is usually measured by determining absorbance at 405 nm. Most melanins are insoluble in water though some may be soluble in water.

According to origin, melanins may be classified as: 1, derived from L-tryptophan or L-dopamine; 2, derived from Maillard reaction and 3, derived from oxidation of phenolic compounds. Each kind of melanin has various chemical or physical properties, various formation mechanisms and complicated structures.

Melanin widely exists in foods or food materials, for example, 7.2 - 35% in the dry matter of coffee drink, 14 - 30% in bread crust, ca.15% in chocolates containing ca. 55% cocoa powder, ca. 22% in cocoa powder, 74 - 93% in dry matter of vinegar [1-6]. Black animal, fungus, plant food or raw materials generally contain a certain amount of melanin. Artificial melanin caramel pigment is widely used in variously processed beverages and foods. Every day, dietary intake of melanin for ordinary people was reported to be as high as 10g [7,8].

Edible melanins have many bioactive activities. For example, they have antioxidant activity (e.g. those from coffee inhibited the oxidation damage of DNA or from teas), anticancer ability (e.g. those in bread crust or biscuits or black beans or black sesame), antimicrobial capacity (e.g. those produced by Maillard reaction), anti-inflammation (e.g. those from *Nigella sativa* seeds or grapes), hypotensive or hypolipidemia function (e.g. those coffee, beer, or sweet grape wine), metal ion chelation (e.g. those produced by Maillard reaction) and beneficial effect on intestines and stomach system (e.g. those from *Nigella sativa* seeds) [7,9-11]. The melanins derived from the oxidation of polyphenols has the property of liver protection and immune function adjustment (e.g. those from black tea).

Therefore, studies on melanins should be very prosperous in future. It should be worthwhile undertaking extensive research with respect to fundamental studies on structure of melanins and its relationship with bioactive ability, production or application of melanins to food industry, evaluation of dietary safety.

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