



Natural peptides and proteins: potent tyrosinase inhibitors

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Background and objectives: Tyrosinase is a copper containing oxidase which is crucial for controlling the production of melanin in creatures such as bacteria, fungi, plants and mammals. It is involved in the first two steps of melanin biosynthesis and leads to pigmentation and different types of cancer such as melanoma. Also, it is responsible for browning of fruits and vegetables. Therefore, safe and efficient tyrosinase inhibitors are useful in the field of clinical medicine, cosmetics, agricultural and food industries. Conventional tyrosinase inhibitors such as hydroquinone, kojic acid, and arbutin have suffered from several problems such as melanocytes cytotoxicity, irritation, low permeability through the skin, contact allergy and low stability. Considering these difficulties, researchers have developed various naturally occurring anti-tyrosinase agents and in this regard, peptides and proteins have attracted lots of attention. **Methods:** In this work, anti-tyrosinase peptides and proteins obtained from natural resources were reviewed using credible databases. **Results:** Literature survey revealed that development of anti-tyrosinase activity of naturally occurring peptides and proteins started from 1974. Mushrooms (*e.g. Agaricus hortensis*), bacteria (*e.g. Lactobacillus helveticus* and *Oscillatoria agardhii*), plants (*e.g. Pseudostellaria heterophylla*, rice bran), silk and egg yolk have been found as the most potent inhibitors. **Conclusion:** Literature review depicted that natural peptides and proteins can be consumed efficiently as tyrosinase inhibitors with much lower side effects. In this respect, new horizon will be opened to safe anti-tyrosinase agents.

Keywords: natural sources, peptides and proteins, tyrosinase inhibitors