**Application of microbial pigments in the food industry**

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Synthetic pigments have low safety and cause some risks to human health. Today, the Food and pharmaceutical industries need new pigments strongly, which must be natural, safe, and healthy pigments. Natural pigments are produced from microbes, plants, and microalgae. Natural pigments such as carotenoid, azaphilone, anthraquinone, phycoerythrin, lutein, zeaxanthin, isorenieratene. Microorganisms that produce pigments such as *Agrobacterium* spp, *Serratia* *marcescens*, *Cyanobacteria* spp, *Penicillium* *oxalicum,* *Plasmodium* spp. Carotenoids, naphthoquinone, and Violacein have antioxidant activity. *Streptomycin* produces colored natural antibiotics against human pathogenic microorganisms. aquatic *cyanobacteria* produce an Anti-cancer agent called Scytonemin, a yellow-green pigment that inhibits the proliferative cell. carotenoids produced by microorganisms enhance immune response.

The purpose of this research was to review recent studies on the production and properties of microbial pigment.

In this research, the keywords of natural colors, microbial pigments, safety, and food were searched in Google Scholar, PubMed, etc. A summary of the obtained information was compiled and expressed.

According to the properties of the microbial pigment such as natural, eco-friendly, and healthy compounds, antimicrobial, anticancer, immunoregulation, and anti-inflammatory, the production of microbial pigment has been considered. The production of microbial pigments in optimal bioreactors with low-cost substrates is very suitable and cheaper than chemical methods. In the future, more microbial pigments will be discovered, which will focus more on their beneficial and structural properties of microbial pigments.

**Keywords:** Microbial pigments, antioxidant, Antimicrobial, Safety, Food.