

BIOLOGICALLY ACTIVE SUBSTANCES FROM MICROORGANISMS

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Food is a necessary component for the sustenance of all life, hence it is necessary to consume more than just a balanced diet. Biologically active foods that can help our bodies remove toxins or stop the development of some chronic diseases.

All living things must modify their biochemical and physiological processes to cope with the ongoing changes in their environment. Numerous processes of adaptation to the action of abiotic, biotic, and anthropogenic stimuli specify distinctive traits of plants in the synthesis of bioactive chemicals, which are food additives that affect the physiological or cellular activities of people or other animals who consume them.[1]. In contrast, stabilizers and bulking agents are frequently used in cosmetics. Some bioactive compounds that may prevent diseases like cancer, atherosclerosis, cataracts, multiple sclerosis, and cardiovascular diseases have also been linked to an important role in lipid regulation and antioxidant and antiinflammatory activity. They consist of plant sterols, carotenoids, tannins, betalains, anthocyanins, flavonoids, and glucosinolates.[2]. Normally, these substances that are found in nature—in plants, fruits, animals, and microorganisms—have been chemically synthesized; however, recent restrictions on the use of chemically synthesized bioactive substances as food additives or in functional cosmetics have increased interest in obtaining them from natural sources. However, due to the beneficial effects in human health, alternative ways of producing larger and more specific amounts have been developed, in which production using microbiologic techniques has an important role. To create compounds with added value, microorganisms such as fungi, bacteria, yeast, and microalgae have been used [3], and solid-state bioprocesses using agro-industrial waste have been studied. Employing microorganisms for the production of added-value products appears to be a very relevant tool for the pharmaceutical, chemical, and food industries, including the production of complex materials like proteins, nucleic acids, polysaccharides, and even cells, down to low-molecular weight molecules possessing biological activities. Some of these compounds are synthesized naturally from a wide variety, including molecules like pigments, oligosaccharides, and other molecules.[4].

Most significantly, flavonoids provide anti-inflammatory, antioxidant, and cardiovascular health advantages in addition to anti-cancer capabilities. Anthocyanins have beneficial impacts on cardiovascular health, while more research is needed. In addition to improving vision and the skin, carotenoids can protect against certain malignancies. Glucosinolates contain anti-cancer and anti-dementia properties. The literature on the effects of various bioactive substances on human health, however, varies greatly, necessitating more study and clarification in order to maximize any health advantages.[5].

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