

### 35. Biologically active substances of fruit and berry cultures for life support of the human body

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**Introduction.** Mood, health, work capacity and longevity depend on the structure of human nutrition. Food components help build new cells and body tissues; energy supply; synthesis and functioning of enzymes.

**Materials and methods.** In order to strengthen the body's immune system and prevent cancer, it is recommended to include vitamin-rich fruits and berries in the diet throughout the year - black currants, rowanberries, raspberries, blueberries, blackberries, cherries, etc.

**Results.** The quality of fruit and berry raw materials, its taste properties, nutritional and biological value should be considered as a dynamic set of useful properties, programmed by nature itself. Moreover, the taste properties of this raw material are mainly determined by the composition and quantitative ratio of sugars and organic acids, and the dietary and medicinal value is determined by the content of essential biologically active substances, primarily ascorbic acid, polyphenolic compounds, etc.

The largest group in fruits and berries consists of antioxidant vitamins: ascorbic acid, carotenoids (in particular,  $\beta$ -carotene, lycopene, lutein), bioflavonoids. Carotenoids, regardless of the presence or absence of their ability to be transformed into vitamin A in the body, have their own antioxidant activity unrelated to this transformation. The content of  $\beta$ -carotene can reach quite high values (up to 7 mg% in apricots, with a daily requirement of 5-6 mg), in addition, the fruits contain ascorbic acid and bioflavonoids in high concentrations. According to the literature, the discrepancy in the amount of vitamin C for black currant berries of different varieties is in the range of 49.8...589 mg%.

Ascorbic acid blocks the formation of carcinogenic nitrosamines from nitrates - a food additive that is widely used in the production of food products; participates in the regeneration of  $\alpha$ -tocopherol during its free-radical oxidation by active forms of oxygen; is important for the cellular immune system, etc.

The biochemical composition of fruits and berries is characterized, in most cases, by a rather high content of bioflavonoids. From the point of view of biology and medicine, a complete characterization of plant raw materials in terms of the content of capillary-strengthening compounds can be given only if they simultaneously contain such main representatives of P-active compounds as colorless catechins and leucoanthocyanins, yellow flavones and red-violet anthocyanins. It is in black chokeberry, black currant, cherry, blueberry that the P-active complex includes all the named necessary compounds. For comparison: in rose hips, for example, there are only two groups in the predominant amount: catechins and flavones.

Fruits and berries are of no less interest as a source of biologically active concentrates and natural dyes. For example, in connection with the study of black chokeberry BAR, the question arose about the importance of flavonoids in plant and animal organisms and the prospects for the development of their production.

**Conclusions.** Biocomponents of fruit and berry raw materials, transforming in metabolic processes into structural and functional elements of cells of a living organism, ensure its physical and mental performance, adaptive capabilities, immune status, determining the state of human health, life expectancy, social and individual activity.