ABSTRACT

Key words: berries, active - biological compounds, natural juices, syrups, dynamics, refrigerated state, frozen state, retention.

PhD thesis - RESEARCH CONCERNING ACTIVE - BIOLOGICAL COMPOUNDS IN NATURAL JUICES OBTAINED BY PRESSING - developed by PhD student Biologist. Eng. Maria Vârsta in the Faculty of Biotechnology, under the supervision of Mrs. Prof. Univ. PhD Eng. Mona Elena Popa, at Doctoral School of USAMV Bucharest consists in 3 parts, divided into 9 chapters, 128 figures, 33 tables, 2 annexes and bibliography with 183 titles.

The first part of the PhD thesis is titled - Bibliographic study - and the second part is called - Experimental research concerning active - biological compounds in natural juices obtained by pressing. The third part contains general conclusions, author's contributions and result dissemination obtained after the conducted research.

To achieve the goal and objectives proposed in the PhD thesis, Part I was divided into 2 chapters. The first chapter includes a documentary study about: the chemical composition of berries; nutrition and health issues; factors influencing keeping fresh fruit; storage methods of berries through refrigeration, freezing, controlled atmosphere and the use of gamma radiation in preserving berries. The second chapter: experimental research concerning active - biological compounds in natural juices obtained by pressing.

Based on documentary research established research plan that includes:

- Experimental research on the development of new food products, such as juice / syrup without synthetic dyes natural, no preservatives or other correction by pressing method (at room temperature);

- Experimental research on the influence of temperature on the dynamics of active-biological compounds in berries studied and in juice / syrup obtained from them;

- Physicochemical, microbiological and analysis of nutritional properties;

- Experimental research on the establishment of markers for the identification of products and consumer preferences;

- Research on consumer behavior to products from berries and factors influencing consumption of berries juices / syrups.

Part II of the PhD thesis was structured in five chapters were presented: materials, methods and apparatus used in experiments; experimental research on the characterization of the

fruits used in the development of berry syrup by pressing; experimental research on determining the composition of nutrients and active compounds in berries syrups, pressed; experimental research on the establishment of markers for the identification of products and consumer preferences;research on consumer behavior toward berries syrups.

Raw materials used for the development of products such as natural syrups are berries: blueberries, black berries and sea buckthorn. For each product was prepared by 3 samples was analyzed: fresh; refrigerated (4 ^{0}C) at 3 days, 7 days and 10 days; frozen (-18 ^{0}C) at 1 month, 3 months, 9 months and 12 months. The results obtained are summarized in the physicochemical, microbiological and nutrients that have been carried out on fruit and syrups.

The analysis shows significant amount of active - biological compounds that have been preserved in natural syrups obtain by pressing of the fruit.

The amount of vitamin C in blueberry syrup is 16.25 mg / 100 g, compared to 32.75 mg / 100 g of the frozen blueberry fruit at 12 months. The result is 49.61% retention of vitamin C by non-thermal processing, which means an appreciable amount of vitamin C in the blueberry syrup.

The amount of vitamin C in the black berries syrup is 65.00 mg / 100 g, compared to 162.50 mg / 100 g in black berries fruit, at 12 months frozen. It follows 40.00% retention of vitamin C through non-thermal processing, which means a considerable amount of vitamin C in black berries syrup.

The amount of vitamin C in sea buckthorn syrup is 24.78 mg / 100 g, compared to 61.75 mg / 100 g of the fruit of sea buckthorn frozen at 12 months. It follows 40.13% retention of vitamin C through non-thermal processing, which means a considerable amount of vitamin C in sea buckthorn syrup.

Blueberry syrup has 23.52% retention of anthocyanin and black berries syrup has 32.39% retention of anthocyanin, which means an appreciable amount of anthocyanins in blueberries and black berries syrups.

Sea buckthorn syrup presented 35.35% retention of carotenoids, which means an appreciable amount of carotenoids in sea buckthorn syrup.

From research on consumer behavior to products from berries revealed that a large number (96%) of the respondents know more berry products. Regarding berry syrups, 85% know a number of these products, but those who are using fewer (60%). Following factors influencing consumption of juices / syrups berries resulted, primarily, their relatively high price, namely the relatively low level of consumer income; it found that few consumers would consume more of these products, if they knew better advantages and health benefits of this consumption. While

most consumers know more berry products still do not consume enough of such products. Most consumers have reported consumption once of a week and once a month.

Since berry products are not consumed in sufficient quantity for body, natural juices / syrups from berries obtained by pressing as an alternative to the enrichment of organism whit active - biological compounds valuable for health maintenance. These products can be purchased on the Romanian market, but can be prepared at home.