

## **Valorization of bioactive compounds in local plant agri-food waste materials for functional food products**

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### **Abstract**

In the last 20 years, there has been a resurgence of interest in hemp seed due to its nutritional and pharmaceutical value. Australia, Canada and most recently the United States have legalized the cultivation of hemp seeds with low levels of tetrahydrocannabinol (THC) (<0.2% w/w). The Republic of Moldova has favorable climatic conditions for the cultivation of hemp and annually over 700 kg of *Cannabis sativa* L. hemp seeds are harvested per hectare, 37 % being food waste (oil cake). In the food industry, hemp seeds are widely used as a means of enriching or fortifying food products. Derivatives as well as hemp seeds have been evaluated as an added ingredient in products consumed daily, such as bakery products (bread, biscuits), meat and meat products, yogurts. Regarding the nutritional quality of products enriched with hemp flour, the addition of hemp seeds or its derivatives has been found significantly in the nutritional quality, as it increases total protein and fat content, total soluble and insoluble dietary fiber, group B vitamin and mineral.

*Cannabis sativa* L. culture is cultivated for medicinal and industrial purposes. Hemp seeds contain 35-45% lipids with a unique, perfectly balanced composition of fatty acids. Depending on environmental factors and variety, the protein content of whole hemp seeds can vary from 25 to 30%. Total carbohydrate content from hemp seeds can vary between 20 and 30%. It should be mentioned that the *Cannabis sativa* L. seeds are of particular interest from the point of view of the content of B1, B2, B6 vitamins. At the same time, 100g of seeds contain the average daily rate of phosphorus, potassium, magnesium, manganese and zinc. Due to the chemical composition of the seeds, they have therapeutic effect. The amount of essential nutrients increases with the elimination of the fat fraction. After the hemp seeds oil extraction, the oil cake (meal), that is considered a food waste, in the fact is an important source of protein and constitutes 45-55%. It is not used in the food industry in the Republic of Moldova, but only as food for animals.