

EDITORIAL

Several articles published in this issue focus on bioactive compounds in foods and their potential health benefits. Bioactive compounds are naturally occurring chemical substances in foods that have a positive impact on health beyond basic nutrition. They are found in a wide variety of plant and animal-sourced foods and play a key role in preventing diseases and promoting well-being.

The main classes of bioactive compounds include polyphenols, carotenoids, phytosterols, alkaloids, prebiotics, and omega-3 fatty acids. Polyphenols are mostly found in fruits, vegetables, tea, and coffee. They are well-known for their antioxidant and anti-inflammatory properties, which help protect the human body from oxidative stress and reduce the risk of chronic diseases such as heart disease and cancer. Furthermore, carotenoids such as β -carotene, lutein, and lycopene, are present in red-orange-colored fruits and vegetables such as carrots, tomatoes, pumpkin, watermelon, and sweet potatoes. β -Carotene, in particular, is a precursor to vitamin A, essential for vision and skin health. Phytosterols such as campesterol found in nuts, seeds, and vegetable oils help lower LDL cholesterol levels by competing with cholesterol for absorption in the gastrointestinal tract. Lowering cholesterol potentially leads to a reduced risk of cardiovascular diseases. Additionally, phytosterols have anti-inflammatory effects and may play a role in cancer prevention, especially colorectal and prostate cancer.

One article published in this issue describes developing rice bran oil incorporated margarine. Rice bran oil is surprisingly rich in other bioactive constituents such as oryzanol, tocopherols, phytosterols, polyphenols, and squalene which also accounts for antioxidative properties. Omega 3 fatty acids, particularly EPA and DHA found in salmon, mackerel, and sardines are crucial for brain health, reducing inflammation, and supporting heart health by lowering triglyceride levels, improving arterial function, and reducing blood pressure. Omega-3s are also beneficial for mental health, reducing the risk of depression and anxiety. Many bioactive compounds, especially polyphenols, omega-3 fatty acids, and phytosterols, contribute to heart health by reducing blood pressure, cholesterol levels, and inflammation.

Some plant bioactives such as polyphenols, carotenoids, conjugated linoleic acid [CLA], and flavonoids exhibit anti-cancer properties by scavenging free radicals generated in the cells, reducing oxidative stress, and inhibiting the growth of cancer cells. These bioactives are effective in reducing the risk of cancers such as breast, prostate, and colorectal cancer. Prebiotics present in yams, fruits, and vegetables promote intestinal health by promoting beneficial intestinal flora. A healthy gut microbiome improves digestion, supports immune function, and can potentially lower the risk of metabolic diseases.

In conclusion, bioactive compounds in foods are essential components of a healthy diet, offering a plethora of health benefits. They help prevent chronic diseases, improve overall well-being, and support various physiological processes. Therefore, incorporating a diverse range of foods such as fruits, vegetables, nuts, seeds, and marine fish keeps populations healthy.

Professor Terrence Madhujith and Professor Chandima Wickramatilake
Editors-in-Chief

Terrence Madhujith, Ph.D.
Editor-in-Chief
Department of Food Science and Technology
Faculty of Agriculture
University of Peradeniya
Peradeniya
Sri Lanka
tmadhujith@gmail.com

Chandima Wickramatilake, Ph.D.
Editor-in-Chief
Department of Biochemistry
P. O. Box: 70, Faculty of Medicine
University of Ruhuna
Galle
Sri Lanka
chandima@med.ruh.ac.lk