Abstract of Presentation

Presentation Title (Should be no more than 20 words):

Searching for new functional properties in traditional foods of Japan and South America

Abstract :

Traditional food has a long history for safety use and should contain a unique biofunctional ingredient playing beneficial role on our health and without side effects. The functional ingredients are usually non-nutrients. Nutrients undergo catabolic changes to produce ATP energy, but non-nutrients do not. Because they do not undergo catabolic decomposition, non-nutrients can exist mostly in their unchanged forms in food, and consequently, non-nutrients exhibit diverse biofunctions to prevent degenerative diseases. However, most non-nutrients undergo conjugation with glucuronic acid or sulfate on the functional groups at the intestinal absorption process and excreted to digestive lumen without absorption. For better understanding to prevent diseases, bioavailable functional non-nutrients should be identified in the traditional food. In this workshop, the highly bioavailable non-nutrients in Japanese traditional food kombu and South American propolis will be discussed. Kombu (Japanese kelp, *Laminaria japonica*) contains a unique oxygenated carotenoid, xanthophyll fucoxanthin, and South American propolis abundantly includes artepillin C collected by honey bees from one of Groundsel trees *Baccharis dracunculifolia*. Fucoxanthin is incorporated and circulated in bloodstream only after hydrolysis of side chain to fucoxanthinol and shows anti-carcinogenic activity by induction of G0/G1 arrest in the cell cycle of tumor cells and anti-obesity activity through inducing uncoupling protein 1 in mitochondria of white adipose tissue. Artepillin C possesses two prenyl groups adjacent to hydroxyl group, which is a target for conjugation enzymes. Hydrophobic prenyls interfere with the approach of enzymes to the target. Artepillin C was incorporated mostly without undergoing the conjugations and exhibited remarkable suppression of aberrant crypt foci formation in colon in carcinogen challenged mouse. The event was attributed to stimulating expression of Cip1/p21 by artepillin C. Thus, Traditional food has the functional properties that play a beneficial role on our health.