Study of effective components of some vegetables in Allium on life-style disease

Study of effective components of some vegetables in *Allium* on life-style disease

Xiaofeng ZHANG

UNU Kirin Fellow from China
Nutritional Function Laboratory
National Food Research Institute, NARO

This study using *in vitro* analysis provides insight about antioxidative activity and key enzymes relevant to hyperglycemia and obesity inhibitory effect of methanol extracts from seven *Allium* vegetables in relation to their total phenolic content, total flavonoid content and phenolic components.

The Onion Skin exhibited the highest 2, 2'-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging capability, followed with Onion Outer Layer, Chives Leaf and Garlic Chives. Total phenolics content in seven *Allium* vegetables ranged from 22.06 mg GAE/100g DW (Chinese Onion) to 983.18 mg GAE/100g DW (Onion Skin). Onion and Garlic Sprout, which have the higher total flavonoid content, the inhibitory activity of α-glucosidase were also at the higher level. Chives and Onion exhibited higher lipase inhibitory activities. Garlic which showed the very lower α-glucosidase inhibitory activity, was found a certain lipase inhibitory activity.

The effective phenolic components rutin, quercetin-3-D-glucoside, quercetin, kaempeferol, ferulic acid were quantified by HPLC with UV detector. Garlic is the only one that contained none of the flavonols (quercetin, rutin, kaempeferol, quercetin-3-D-glucoside). Onion skin are richer in quercetin (156.8 mg/kg DW) and kaempeferol (71.6 mg/kg DW), while Green Onion Leaf are richer in rutin (611.2 mg/kg DW) and ferulic acid (91.7 mg/kg DW). Garlic Sprout has the highest concentration of quercetin-3-D-glucoside with value of 145.1 mg/kg DW.

Onion, Green Onion, Chieves and Garlic Sprout may be recommended for their major potential functional properties.