

Investigation of functional molecules of some traditional fruits and edible seeds for their anti-influenza viral activity

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Influenza is an infectious disease and sometimes causes pandemic. The pandemic becomes severe when the new type influenza shows drug resistant to the available therapeutic options. Besides this some strains of seasonal influenza virus have already shown their resistance to some antiviral drugs. For example, adamantanes (M2 blocker) showed a dramatic resistance to seasonal flu and oseltamivir-resistant influenza A/H1N1 is spreading all over the world. Therefore, there is a need to develop new antiviral agents for therapeutics and prevention.

Developing a functional food is our approach for the prevention of influenza infection. For this purposes, we are screening some commonly available foods those will be effective against influenza infection. Our project provides scientific information of some foods those contain beneficiary effects against influenza virus infection. We found some functional molecules of those foods for anti-viral activity. Hesperidin, a bioflavanoid, found in orange and other citrus fruits and its synthetic derivative alpha glucosyl hesperidin (GH), a synthetic flavanoid, showed inhibitory effect on viral infection and replication. GH showed sialidase inhibition activity of different types of influenza virus. Green tea contains polyphenols and ellagitannins. The antiviral activity of some polyphenols (e.g. EGCG and catechins) has already been reported. Here, we found an ellagitannin, strictinin, showed influenza virus inhibition activity at the early stage of viral infection. Therefore, green tea (*Camellia sinensis*) and orange (*Citrus unshiu*) may be suggested as functional foods for the prevention of influenza virus infection.

In conclusion, we found some functional molecules that are useful for the prevention of influenza virus infection. The functional molecules can be used as an additive and seed compound for development of functional food against influenza viruses.