S34-4 Structural basis of the biological activity of tannins and related polyphenols

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Recent advances on the polyphenol studies revealed the importance of the investigation on the oxidative changes of polyphenols, together with that on their anti-oxidative effects. On the other hand, the influences of polyphenol interaction with biomolecules (esp., proteins) on their pharmacological effects should also be investigated, since polyphenols, especially those with higher molecular weights, are characterized by their binding with proteins. We report here the advances on the structural studies on the polyphenols of some herbal medicines and the medicinal plants, along with some findings on the studies from such a viewpoint.

Aqueous extracts from leaves and young twigs of *Uncaria gambir* have been used as "gambir" for medicinal purposes, and (+)-catechin has been reported as their major constituent. We investigated on the structures of the polyphenolic constituents of gambir, and also the structural changes of (+)-catechin on the heating of its solution, to show its polymerization process. We also found a new compound with the hybrid structure composed of (+)-catechin and an alkaloid during this study.

Anti-tumor effects of hydrolyzable tannins of *Tamarix* species, found by a joint research with Prof. H. Sakagami, Meikai University, will be reported, too.