

## Abstract of Presentation

**Note: This paper should be typed in “Times New Roman” of 12pt.**

### **Current Topics of Anaerobic Bacterial Transformation in Connection with Activation of Herbal Constituents**

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#### Abstract :

Orally administered herbal constituents inevitably contact with intestinal bacteria present in the gastrointestinal tract, and metabolized to various compounds by bacterial hydrolysis, reduction and cyclization etc. For examples, some plant lignans are converted to mammalian lignans such as estrogenic enterodiol and enterolactone by human intestinal bacteria. We have extensively studied the transformation of secoisolariciresinol (SDG) from flaxseeds, arctiin from the seeds of *Arctium lappa*, pinoresinol diglucoside from the bark of *Eucommia ulmoides*, and tracheloside from the seeds of safflower, to mammalian lignans, and their metabolic processes by individual bacteria and intestinal flora. In the metabolic processes of these lignans, dehydroxylation of the 3,4-dihydroxyphenyl residue and oxidative lactonization of the butane-1,4-diol system are demonstrated to be highly enantioselective for substrates, but deglucosylation and demethylation are not enantioselective.

Recently, we also demonstrated that *C*-glucosyl flavonoid puerarin was converted to an estrogenic compound equol through daidzein by co-culture of strains PUE and DZE, and the former strain was an anaerobic bacterium responsible for novel *C*-glucosyl bond cleavage.

These findings indicate that intestinal bacteria play essential roles for manifestation of pharmacological and clinical effects of plant constituents. However, since human intestinal bacterial flora vary among people, the pharmacological and clinical efficacy may be altered depending on the difference in individual bacterial flora. For solving this difficult problem, we will propose plausible schemes in this workshop.