

## Efficacy, Interaction with Co-administered Drugs and Safety of Medical Herbs

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Currently, the popularity of dietary supplements containing health foods and botanical products is growing at a remarkable speed, in terms of promotion of health, prevention and therapy of diseases. In particular, elderly people take frequently supplements with prescription drugs and such a tendency will be further increased hereafter. The major concern is adverse event by a large excess intake or interactions between supplements and drugs. The goal of Research Project 1 is to elucidate efficacy, interaction with co-administered drugs and safety of functional foods and their active ingredients with scientific bases, and to construct an integrated database of drug-food interactions combining the evidence from basic research and clinical outcomes.

Medical herbs have grown faster as one of complementary and alternative medicine, but their scientific knowledge is still lacking. The potential for pharmacokinetic and pharmacodynamic interaction with drugs is considerable because herbs contain a number of constituents. We have previously shown that Ginkgo biloba extract (GBE) influences significantly pharmacokinetics and pharmacodynamics of co-administered drugs which are metabolized by CYP2C9 and CYP3A4. Bilobalide contained in GBE was identified as the potent inducer of hepatic CYP. Saw palmetto extract (SPE) was first shown to improve significantly lower urinary symptoms in patients with benign prostatic hyperplasia and overactive bladder, possibly by antagonism of prostatic  $\alpha_1$ -adrenoceptors and bladder muscarinic cholinergic receptors. Lauric acid and oleic acid were identified as major active principles for pharmacodynamic effects of SPE. Notably, SPE unlike GBE was suggested to exert little pharmacokinetic interaction with co-administered drugs. From these data, emphasis is placed on the importance of rigorous scientific evaluation of efficacy and safety of functional foods such as herbs to establish their optimum use.