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Effects of the *Sohaphyangwon* Fragrance on Central Nerve System and GABA Receptor in Mice

Byung-Su Gu, Dong-Ung Lee*

Department of Oriental Neuropsychiatry, College of Oriental Medicine,
Dongguk University, Seoul, Korea

*Department of Biochemistry, Dongguk University, Kyongju 780-714, Korea

This study was performed to examine the inhibitory effects of the fragrance of *Sohaphyangwon*(蘇合香元), which is traditional sedative drugs in Korea and China, on the central nerve depression and receptor activation in Mice. For this purpose, anticonvulsive effect, the inhibitory effect on GABA transaminase activity, brain GABA level, brain glutamate level, antioxidative activities, agonistic effect on GABA/benzodiazepine receptor and potentiation on pentobarbital-induced sleeping time have been investigated *in vivo* and *in vitro*.

The results were summerized as follows :

1. Inhalation of *Sohaphyangwon* fragrance significantly lengthened the onset time of convulsion, shortened the convulsion duration and diminished lethality. The effect of *Sohaphyangwon* fragrance was similar with that of vigabatrin 10mg/kg.
2. The *in vitro* inhibitory effect of *Sohaphyangwon* fragrance on GABA transaminase (GABA-T) activity was much weaker than that of vigabatrin, but similar with that of valproic acid, which are positive controls. *In vivo* test, this fragrance showed a potent inhibitory effect on GABA-T activity.
3. *Sohaphyangwon* fragrance strongly enhanced the brain GABA level and almost fully reduced glutamate, which was practically not detected by HPLC.

The effect of *Sohaphyangwon* fragrance was similar with that of vigabatrin 10mg/kg.

4. Measurements of the antioxidative activities of *Sohaphyangwon* showed that this fragrance inhibited aldehyde oxidase activity, lipid peroxidation and DPPH radical, but did not affect xanthine oxidase activity.

5. *Sohaphyangwon* fragrance inhibited dose-dependently the binding of the antagonist on GABA/benzodiazepine receptor complex in rat cerebral cortices.

6. *Sohaphyangwon* fragrance lengthened significantly the pentobarbital-induced sleeping time, of which effect was similar with that of chlorpromazine hydrochloride 10mg.

Above results suggest that *Sohaphyangwon* fragrance can be applied for the anticonvulsant and/or sedative by the convenient inhalation of fragrance oil.