Isolation of Saponin Constituents from the Leaves of *Kalopanax pictus* and HPLC Analysis

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We have reported the biologically active substances of the stem bark of *Kalopanax pictus* (KP). However, utilization of the leaves (KPL) of KP, which are edible as a vegetable or functional food has not been issued up to date. Since the collection of KP for the crude drug, Kalopanacis Cortex (the stem bark of KP, KPS), destroy natural resources, utilization of the leaves instead of the stem bark may protect disappearance of this plant in Korea. *K. pictus* has generally thorns (KPT) whereas some KP (KPN) has rarely no thorns, which is believed to be a mutant. From those two plants (KPT and KPN), the leaves were collected every month from May 2005 to September 2005 and dried. MeOH extracts and crude saponins were obtained from KPL and KPS, weighed and then the extraction yield were calculated. Repeated silica gel and ODS column chromatography led to the isolation of four kalopanxsaponins A, B, JLa, and JLb, which were identified by physicochemical and spectroscopic methods. The components kalopanxsaponins JLa and JLb were not found in the bark. The KPL and KPS grown in China and Korea were extracted with MeOH under reflux, dried on a rotatory evaporator and a freeze dryer. The crude saponins were prepared using classical fractionation, filtration by charcoal column and elution of Diaion HP-20 column. The saponin content was shown as follows: the KPT leaf shoot of (0.43%), the KPT leaf collected at June (1.52%), the leaf of KPN (1.05%), KPS of a Korean habitat (0.77%), and KPS of a Chinese habitat (1.58%). The saponin content of the KPT leaf collected on June was higher than those of the KPT leaf shoot and the KPN leaf. A large difference of the saponin content was observed between the KPT- and KPN leaves. The saponin content was increased up to June but after July it was increased no more. The content of KPL collected on June was similar to that of the KPS of Chinese habitat. The KPS of the Korean habitat showed a half amount of saponin content of the KPS of the Chinese habitat. HPLC analysis on saponins was performed using a Varian 9012Q instrument, Shiseido ODS (250×4.6mm i.d.) column, and UV spectrophotometer as a detector. A mixed solvent acetonitril-50mM KH_2PO_4 was used as the mobile phase and eluted by the gradient elution. The peaks of kalopanaxsaponins B and H, the standard saponins, were shown at Rt 13.22 min and Rt 15.23 min, respectively. Although two saponins was found on the HPLC chromatogram of a crude saponin of the leaf shoot, these were not detected in any of crude extracts of the leaves collected after June. These suggest that the saponin constituents may be structurally changed.