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LIPOPHILICITY OF GERANIIN PURIFIED FROM NEPHELIUM LAPPACEUM (RAMBUTAN) RIND

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ABSTRACT

Natural products isolated from medicinal plants play a vital role in the discovery of leads for the development of novel and clinically active drugs against various pharmacological targets. An important part of the optimization process of potential leads to candidates suitable for clinical trials, is the detailed study of the physicochemical properties of the compounds for oral absorption and bioavailability. Geraniin ($C_{41}H_{28}O_{27}.7H_2O$) an elagitannin, was identified as the major compound in the ethanolic extracts of *Nephelium lappaceum* (rambutan) rind with yields of almost 30 %. The compound has been found to possess a range of bioactive properties which includes antioxidant and free radical scavenging activity, antimicrobial and antiviral properties and *in vitro* anti-hyperglycaemic activity. Thus there is a need to purify larger amounts of geraniin and study its physicochemical properties. This is essential in understanding its oral absorption and bioavailability for its potential pharmaceutical applications. The aim of this paper is to report the large-scale purification and the Log P measurement to determine the lipophilicity of Geraniin. Fractionation with reverse-phase C18 column chromatography yielded 21 % geraniin from crude ethanolic extract of rambutan rind. Geraniin was further purified via crystallization to obtain crystals of approximately 98% purity which was confirmed by high performance liquid chromatography (HPLC) analysis. The 1-octanol/water shake-flask experiment was then used to determine the Log P of geraniin. Thus the Log P of Geraniin was found to be -0.68 proving it to be a polar compound with good aqueous solubility and poor lipid solubility which leads to its poor absorption and distribution.