

Formulation of Suppositories Using *Allanblackia Floribunda* Butter as a Base

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Abstract : The rectal route for drug administration is becoming attractive to drug formulators because it can avoid hepatic first-pass effects, decrease gastrointestinal side effects and avoid undesirable effects of meals on drug absorption. Suppositories have been recognized as an alternative to the oral route in situations such as when the patient is comatose, unable to swallow, or when the drug produces nausea or vomiting. Effective drug delivery with appropriate pharmaceutical excipient is key in the production of clinically useful preparations. The high cost of available excipients coupled with other disadvantages have led to the exploration of potential excipients from natural sources. *Allanblackia floribunda* butter, a naturally occurring lipid, is used for medicinal, culinary, and cosmetic purposes. Different extraction methods (solvent (hexane) extraction, traditional/hot water extraction, and cold/screw press extraction) were employed to extract the oil. The different extracts of *A. floribunda* oil were analyzed for their physicochemical properties and mineral content. The oil was used as a base to formulate Paracetamol and Diclofenac suppositories. Quality control tests were carried out on the formulated suppositories. The %age oil yield for hexane extract, hot water extract, and cold press extract were 50.40 ± 0.00 , 37.36 ± 0.00 , and 20.48 ± 0.00 , respectively. The acid value, saponification value, iodine value and free fatty acid were 1.159 ± 0.065 , 208.51 ± 8.450 , 49.877 ± 0.690 and 0.583 ± 0.032 respectively for hexane extract; 3.480 ± 0.055 , 204.672 ± 2.863 , 49.04 ± 0.76 and 1.747 ± 0.028 respectively for hot water/traditional extract; 4.43 ± 0.055 , 192.05 ± 1.56 , 49.96 ± 0.29 and 2.23 ± 0.03 respectively for cold press extract. Calcium, sodium, magnesium, potassium, and iron were minerals found to be present in the *A. floribunda* butter extracts. The uniformity of weight, hardness, disintegration time, and uniformity of content were found to be within the acceptable range. The melting point ranges for all the suppositories were found to be satisfactory. The cumulative drug release (%) of the suppositories at 45 minutes was 90.19 ± 0.00 (Hot water extract), 93.75 ± 0.00 (Cold Press Extract), and 98.16 ± 0.00 (Hexane Extract) for Paracetamol suppositories. Diclofenac sodium suppositories had a cumulative %age release of 81.60 ± 0.00 (Hot water Extract), 95.33 ± 0.00 (Cold Press Extract), and 99.20 ± 0.00 (Hexane Extract). The physicochemical parameters obtained from this study shows that *Allanblackia floribunda* seed oil is edible and can be used as a suppository base. The suppository formulation was successful, and the quality control tests conformed to Pharmacopoeia standard.

Keywords : *allanblackia floribunda*, paracetamol, diclofenac, suppositories

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