

OP 14 – Formulation and Evaluation of Antioxidants Rich Herbal Cream Enriched with *Canna* (red) Flowers Grown in Sri Lanka

Hettihewa S.K.[#], Opatha S.A.T.

Department of Pharmacy, Faculty of Allied Health Sciences, University of Ruhuna, Sri Lanka

[#]Corresponding author: krishanthi2001@yahoo.com

Background: The importance of natural antioxidants has arisen due to the carcinogenic nature of the synthetic antioxidants found in commercial herbal creams.

Objectives: The study was aimed to formulate a herbal cream enriched with dried powder extract of *Canna* (red) flowers grown in Sri Lanka and evaluate its in vitro antioxidant activity.

Methodology: Acidified 70% aqueous acetone crude extract of *Canna* flowers prepared by steeping method was subjected to preliminary phytochemical tests. The total phenolic, total flavonoid contents were determined by using Folin Ciocalteu method and aluminium chloride method respectively. In vitro antioxidant activity was evaluated by using 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay and ferric-reducing antioxidant power activity (FRAP assay). A herbal cream was formulated by incorporating the freeze dried powder of the flower extract followed by evaluating in vitro antioxidant activity and physical parameters (pH, odor, appearance, homogeneity) for 45 days at room temperature.

Results and conclusions: The phytochemical screening exhibited the presence of phenolics, flavonoids, quinones, reducing sugars and saponins and absence of alkaloids in the extract. The results of the total phenolic and total flavonoid contents of the extract were 5389.067 ± 681.343 mg Gallic acid equivalent (GAE)/100 g and 6017.442 ± 158.343 mg Catechin equivalents (CAE)/100 g dry weight (DW) of the flowers. This study revealed promising antioxidant capacity (17.430 ± 2.673 mmol Trolox equivalents/100 g DW of flowers and 3.881 ± 0.033 mmol Trolox equivalents/100 g weight of the cream) by DPPH assay and (43.742 ± 2.047 mmol Fe (II) equivalents/100 g DW of the flowers and 10.422 ± 0.055 mmol Fe(II) equivalents/100 g weight of the cream) by FRAP assay. The formulated herbal cream was found to be semi-solid, homogenous and pink caramel colour with a pleasant odor. The pH of the cream was found to be in the range of 6 to 7. It is concluded that the *Canna* (red) flowers have promising antioxidant activity and the formulated cream can be commercialized as a herbal cream with potent antioxidants.

Keywords: Antioxidant activity, *Canna*, DPPH assay, flavonoids, FRAP assay