

Evaluation of Anti-inflammatory Activities of Extracts Obtained from Capparis Erythrocarpos In-Vivo

Authors : Benedict Ofori, Kwabena Sarpong, Stephen Antwi

Abstract : Background: Medicinal plants are utilized all around the world and are becoming increasingly important economically. The WHO notes that 'inappropriate use of traditional medicines or practices can have negative or dangerous effects and that future research is needed to ascertain the efficacy and safety of such practices and medicinal plants used by traditional medicine systems. The poor around the world have limited access to palliative care or pain relief. Pharmacologists have been focused on developing safe and effective anti-inflammatory drugs. Most of the issues related to their use have been linked to the fact that numerous traditional and herbal treatments are classified in different nations as meals or dietary supplements. As a result, there is no need for evidence of the quality, efficacy, or safety of these herbal formulations before they are marketed. The fact that access to drugs meant for pain relief is limited in low-income countries means advanced studies should be done on home drugs meant for inflammation to close the gap. Methods: The ethanolic extracts of the plant were screened for the presence of 10 phytochemicals. The Pierce BCA Protein Assay Kit was used for the determination of the protein concentration of the egg white. The rats were randomly selected and put in 6 groups. The egg white was sub-plantar injected into the right-hand paws of the rats to induce inflammation. The animals were treated with the three plant extracts obtained from the root bark, stem, and leaves of the plant. The control groups were treated with normal saline, while the standard groups were treated with standard drugs indomethacin and celecoxib. Plethysmometer was used to measure the change in paw volume of the animals over the course of the experiment. Results: The results of the phytochemical screening revealed the presence of reducing sugars and saponins. Alkaloids were present in only R.L.S (1:1:1), and phytosterols were found in R.L(1:1) and R.L.S (1:1:1). The estimated protein concentration was found to be 103.75 mg/ml. The control group had an observable increase in paw volume, which indicated that inflammation was induced during the 5 hours. The increase in paw volume for the control group peaked at the 1st hour and decreased gradually throughout the experiment, with minimal changes in the paw volumes. The 2nd and 3rd groups were treated with 20 mg/kg of indomethacin and celecoxib. The anti-inflammatory activities of indomethacin and celecoxib were calculated to be 21.4% and 4.28%, respectively. The remaining 3 groups were treated with 2 dose levels of 200mg/kg plant extracts. R.L.S, R.L, and S.R.L had anti-inflammatory activities of 22.3%, 8.2%, and 12.07%, respectively. Conclusions: Egg albumin-induced paw model in rats can be used to evaluate the anti-inflammatory activity of herbs that might have potential anti-inflammatory activity. Herbal medications have potential anti-inflammatory activities and can be used to manage various inflammatory conditions if their efficacy and side effects are well studied. The three extracts all possessed anti-inflammatory activity, with R.L.S having the highest anti-inflammatory activity.

Keywords : inflammation, capparis erythrocarpos, anti-inflammatory activity, herbal medicine, paw volume, egg albumin

Conference Title : ICMPCN 2023 : International Conference on Medicinal Plants and Clinical Nutrition

Conference Location : New York, United States

Conference Dates : March 20-21, 2023