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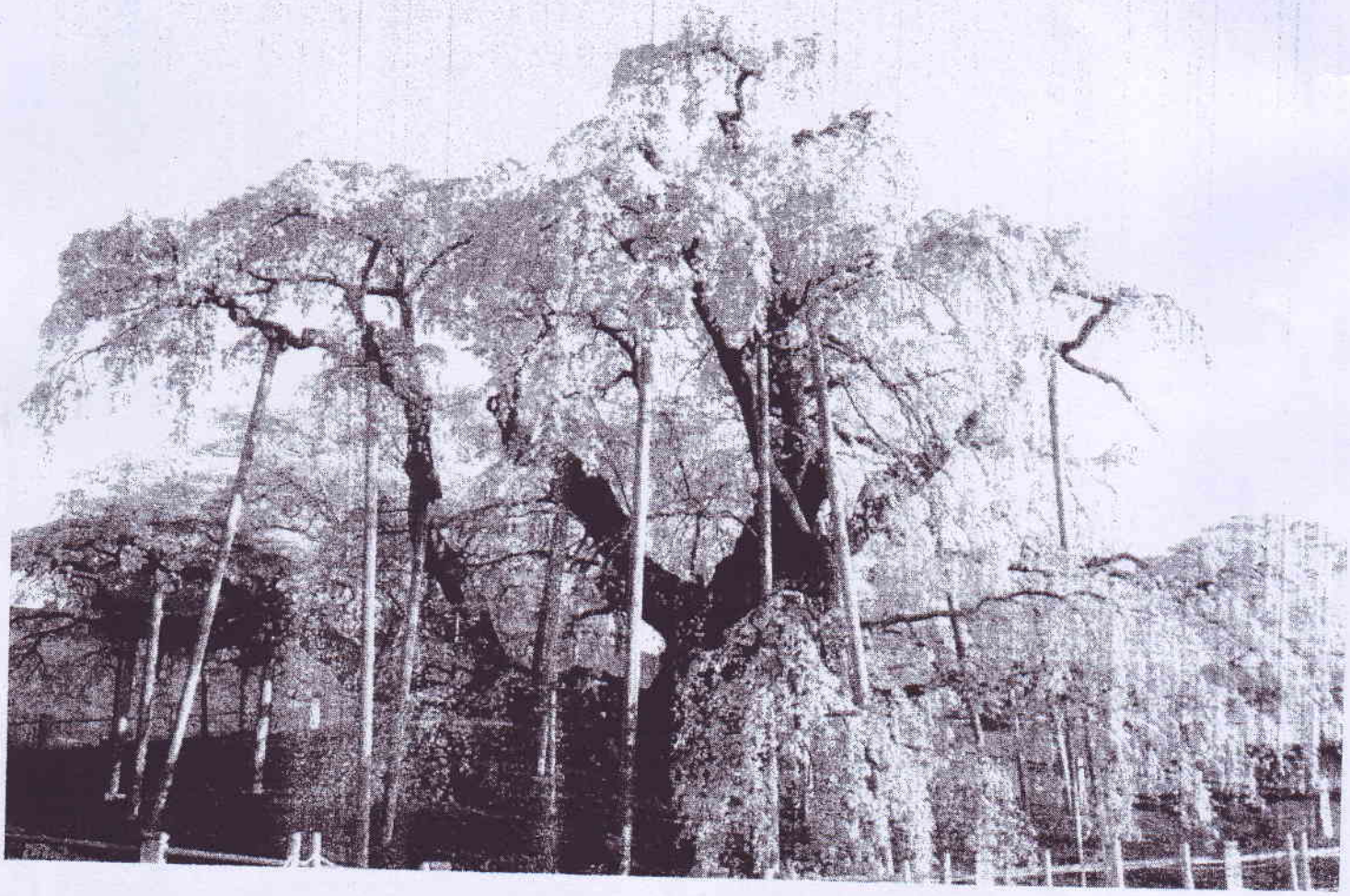

Anti-inflammatory Activity of *Psychotria sarmentosa* Leaves

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Psychotria sarmentosa (named "Gonica" in Sinhala, Family; Rubiaceae) has a long history of use in the folk medicine in Sri Lanka and it has wide popularity in the community as a leafy vegetable. Indigenous healers prescribe an aqueous extract of leaves for individuals who have been physically assaulted, indicating that it may possess potent analgesic and/or anti-inflammatory activity. The literature survey revealed that published scientific information on the medicinal value of this plant is scarce. Hence, present studies have been aimed to evaluate the anti-inflammatory activity and possible mechanisms which could be contributing for the anti-inflammatory action of aqueous extract of fresh leaves of *Psychotria sarmentosa* (AELP).

Healthy adult, male Wistar rats weighing 150 - 200 g were used for each experiments (n=6/group). Rats were housed under standard conditions with a natural light dark cycle and fed with standard diet and clean fresh water *ad libitum*. The animals were acclimatized for at least one week to the laboratory conditions before commencing each experiments and 3 R principal was applied at all times. Ethical clearance (No. 30/14, 35/15) was obtained from Ethics Review Committee, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka. The acute and sub chronic anti-inflammatory activities of leaves of *P. sarmentosa* were evaluated by using carrageenan and formaldehyde induced rat hind paw oedema method respectively. Chronic anti-inflammatory activity was assessed with adjuvant induced arthritis (AIA) rat model. The anti-histamine and anti-nociceptive activities were evaluated by using histamine induced wheal formation test and acetic acid induced writhing test respectively. In an attempt to evaluate the *in vivo* lipid peroxidation activity, thiobarbituric acid reactive substance (TBARS) assay was used and *in vitro* anti-oxidant activity was assessed with DPPH radical scavenging assay. The results of each experiment were compared with negative and positive controls and $p < 0.05$, was considered as statistically significant. Acute and sub chronic toxicity studies were conducted to evaluate the safety.

The results showed that the treatment with different doses of AELP, significantly ($p < 0.05$) reduced the paw oedema formation when compared with negative control. The dose of 100 mg/kg of AELP exhibited the maximum percentage inhibition (66.0%) of paw oedema formation was used as the effective dose in subsequent experiments. In AIA rat model also, AELP showed a marked reduction of oedema formation in injected paw. Further, it showed a marked reduction of loss of body weight and prostaglandin E_2 level. These findings scientifically prove that AELP has a potent acute, sub chronic and chronic anti-inflammatory activity in Wistar rats. Further, AELP showed significant anti-histamine, anti-nociceptive and *in-vivo* and *iv-vitro* anti-oxidant activity which may be contributed for its' anti-inflammatory activity. In the toxicity study, the test animals at all doses levels showed no significant changes in all parameters including histology. In conclusion, these observations provide evidence for the anti-inflammatory properties and its' possible mechanisms of these actions. Activity guided fractionation has yielded several active fractions from which partial identification of compounds have been done. Further studies will be undertaken to complete structural elucidation and bioactivity of isolated compounds.