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**Antioxidant activity of aqueous and solvent leaf extracts of
Ixora coccinea and *Vitex negundo***

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Neutrophils, the first cell type to be activated during an inflammatory response, migrate to sites of injury and release reactive oxygen species (ROS) which kill pathogens. Excessive neutrophil activation leads to inflammatory disorders. *Ixora coccinea* and *Vitex negundo* are two medicinal plants that have been scientifically proven to have anti-inflammatory effects *in vivo*. The objective of this study was to assess and quantify the antioxidant effects of aqueous and solvent leaf extracts of *I. coccinea* and *V. negundo* to determine their capacity to scavenge free radicals and to determine their inhibitory activity on ROS production by human neutrophils using 2,2-Diphenyl-1-picrylhydrazyl and quantitative nitro blue tetrazolium assays respectively. Different leaf extracts were used to identify which fractions contained the anti-inflammatory active components – aqueous (ALE), methanol (MLE), ethyl acetate (ELE), chloroform (CLE) and hexane (HLE).

In antioxidant activity investigations, the order of potency of the *I. coccinea* extracts based on EC₅₀ values (µg/ml) were as follows: ALE (7) > MLE (65) > CLE (127) > ELE (252) > HLE (329). The antioxidant activity of *V. negundo* was as follows: MLE (66) > ALE (127) > ELE (247). No significant activity was noted for CLE and ELE of *V. negundo*. Vitamin C used as the positive control showed antioxidant activity of 6 µg/ml. For *I. coccinea* inhibition of ROS production at 500 µg/ml, the order of potency of the extracts was as follows: MLE (56%) > ALE (51%) > CLE (48%) > ELE (46%) > HLE (32%). In the case of *V. negundo* extracts, inhibition of ROS production was as follows: ALE (55%) > MLE (52%) > CLE (44%) > ELE (41%) > HLE (22%). Diphenyleneiodonium chloride used as the positive control showed a higher inhibition of ROS production (70%). For all extracts for both plants, the activity was found to be dose-dependent in both assays ($r = 0.737 - 0.970$; $p < 0.001$). In conclusion, the results from this study suggest that antioxidant activity and inhibition of ROS production contribute significantly to the underlying anti-inflammatory mechanisms of *I. coccinea* and *V. negundo*, and that the polar extracts (ALE and MLE) had more activity than the non polar extracts (ELE, CLE and HLE).

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