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Antioxidant and anti-inflammatory properties of Erythroxylum cuneatum alkaloid leaf extract
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Abstract
Alkaloid extraction; Erythroxylum cuneatum; Antioxidant; Anti-inflammatory; Carrageenan induced edema; Physiology; Anatomy; Pharmacology; Alternative Medicine; Evidence-Based Medicine © 2020 The Authors

Erythroxylum cuneatum (E. cuneatum) which belongs to Erythroxylaceae family is a tropical flowering plant from the genus of Erythroxylum. It is used in Malaysia and Thailand's traditional medicines, yet there is limited scientific reports on its medicinal value. This study aimed at exploring the antioxidative and anti-inflammatory properties of E. cuneatum alkaloid leaf extract. The alkaloid extract was obtained through Soxhlet heat extraction method, while the antioxidantive properties were assessed via 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical scavenging, ferric reducing antioxidant power (FRAP) and xanthine oxidase inhibition (XOI) assays. Further, anti-inflammatory property of the extract was evaluated on rat's model of carrageenan induced paw model of edema via physical measurements and histology. The extract exhibited antioxidant activity with an EC50 value of 1482 μg/ml in the DPPH radical scavenging assay, an EC1 value of 2191 μg/ml in the FRAP assay and 10.15 ± 6.20% in the XOI assay. Rats pretreated with the extract have shown dose dependent decrease in paw edema when compared to non-treated group of rats. The highest dose (50 mg/kg) of extract exhibited similar effects to aspirin in terms of reducing paw thickness, leucocytes infiltration and disruption of collagen. In conclusion, the E. cuneatum alkaloid leaf extract possesses both antioxidative and anti-inflammatory properties suggesting its potentials for future development of antioxidant and anti-inflammatory drugs. © 2020 The Authors

Author Keywords
Alkaloid extraction; Alternative medicine; Anatomy; Anti-inflammatory; Antioxidant; Carrageenan induced edema; Erythroxylum cuneatum; Evidence-based medicine; Pharmacology; Physiology

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