

Evaluation of Biochemical composition, Secondary metabolites, Antioxidant activity and Heavy metal ions in the Ethanolic leaf extract of *Croton bonplandianum*

Keerthana G, Kalaivani MK, Sumathy A*

Department of Biomedical Sciences, Sri Ramachandra University, Porur, Chennai-600 116, India.

Corresponding author email: sumijoe04@gmail.com, keerthana.ganesh93@gmail.com

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Post Graduate & Research Departments of Biochemistry, Microbiology, Biotechnology and Bioinformatics, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India.

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ABSTRACT

Plants have been in use ever since the ancient time to the present day context as their modernization study focuses on separation, identification and structural elucidation of active compounds. In this study, the ethanolic leaf extract of *Croton bonplandianum* was evaluated for biochemical macromolecules and secondary metabolites. The extract was found to contain increased protein, carbohydrate and lipid content [350mg/g, 8mg/g, 1mg/g respectively] contributing to the bioactivity of the natural entity. Presence of these moieties can increase drug water solubility, decrease toxicity, and/or contribute to maintenance of physiological homeostasis. Secondary metabolites such as phenols ($41.26 \pm 0.39 \mu\text{g/ml}$), flavonoids ($7.53 \pm 0.31 \mu\text{g/ml}$) and tannins ($46.75 \pm 0.14 \mu\text{g/ml}$) have been identified as free radical scavengers and show important anti-inflammatory, anti-allergic and anti-cancer activities. In addition, the reducing power of the extract showed to increase with increasing concentration, exhibiting potential antioxidant activity of the plant. The levels of selected metals (Mg, Fe, Mn, Zn, Cu, Cr, Ni, V, Ag, Cd, Pb) were assessed using ICP-OES (Inductively Coupled Plasma Optical Emission Spectrometry) which were found to be in safe limiting quantities. Specially, metals such as Mg, Zn, Cr (235.500 PPB, 0.584 PPB, and 0.100 PPB respectively) are vital so much that their deficiencies have shown to predispose a person to glucose intolerance and to promote the development of diabetic complications. Based on these preliminary analyses, it could be suggested that *Croton bonplandianum* leaf extract can act as a good source of secondary metabolites and essential metals.