

***In Vitro* Anti-Proliferative Activity of *Curcuma angustifolia* and Estimation of Bioactive Compounds for Antioxidant Activity**

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Abstract: The present work deals with preliminary *in-vitro* studies to validate the traditional claims of medicinal properties in consuming *Curcuma* flowers to make the person less susceptible to diseases and the estimation of bioactive compounds responsible for antioxidant activity present. The anti-proliferative activity of aqueous extracts of budding flowers, leaves, full bloomed flowers and mixture of all parts of *Curcuma angustifolia* was studied using MDCK, Vero and HeLa cell lines. The inhibitory activity in all the three cell lines was found to be dose dependent. The extract of leaves and budding flowers exhibited higher inhibitions in MDCK and Vero cells while the full bloomed flowers extract showed higher inhibitory activities in HeLa cells. The bioactive compounds—total phenolics content ranged from 56.96 to 86.77 mg GEA/100 gm which was highest in full bloomed flowers, total flavonoids and the free radical scavenging activity content ranged from 84.74 to 166.11 mg CE/100 g and 43.91 to 64.02 mg AEAC/100 gm respectively, with maximum content in budding flowers. The result showed potential anti-proliferative and antioxidant properties that substantiate the belief of the indigenous people to include the plant in their dietary habits which could be exploited for use in preparation of herbal drugs and supplements.

Key words: *Curcuma angustifolia*, antioxidants, *in-vitro*, phenols, flavonoids, DPPH.

1. Introduction

The indigenous knowledge (IK) refers to the unique, traditional, local knowledge and practices existing within and developed around the specific conditions of indigenous people of a particular geographical area [1] and such traditional knowledge systems are cumulative, representing generations of experiences [2]. *Curcuma angustifolia* belonging to family Zingiberaceae is also commonly known as East Indian arrowroot, which is endemic to India and has been recorded in Central Himalayas, Bihar, West Bengal, Maharashtra, North western and South India [3]. Different parts of the plant are taken by mouth as a dietary aid in gastrointestinal disorders, applied on the skin to soothe painful, irritated or inflamed mucous

membranes [4–6], as weaning food for babies [3] and for various medicinal purposes by the local herbalists [7]. Medicinal plants contain various metabolites and because of these principles they are widely used to cure various ailments. India's use of plants for health care dates back close to 5,000 years and about 8,000 herbal remedies have been codified in the Ayurveda which are still in use [7]. The plants used in traditional medicine are still a large source of natural antioxidant, antimicrobial, anticancer agents that might serve as leads for development of novel drugs [8] and many naturally occurring substances present in the human diet have been identified as potential chemo-preventive agents against cancer [9]. The *Curcuma* plant grows wild in many places of North East India and the local communities of Manipur, Nagaland and Meghalaya consume the early tender

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