

In vitro Antioxidant Activity and Total Phenolic Content of Dillenia indica and Garcinia penducalata, Commonly Used Fruits in Assamese Cuisine

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Abstract : Human diet can be a major source of antioxidants. Poly-phenols, which are organic compounds present in the regular human diet, have good antioxidant property. Most of the diseases are detected too late and that cause irreversible damage to the body. Therefore food that forms the natural source of antioxidants can prevent free radicals from damaging our body tissues. Dillenia indica and Garcinia penducalata are two major fruits, easily available in Assam, North eastern Indian state. In the present study, the in vitro antioxidant properties of the fruits of these plants are compared as the decoction of these fruits form a major part of Assamese cuisine. DPPH free radical scavenging activity of the methanol, petroleum ether and water extracts of G. penducalata and D. indica fruits were carried out by the methods of Cotelle A et al. (1996). Different concentrations ranging from 10-110 ug/ml of the extracts were added to 100 uM of DPPH (2,2, Diphenyl-2-picryl hydrazyl) and the absorbance was read at 517 nm after incubation. Ascorbic acid was used as the standard. Different concentrations of the methanol, petroleum ether and water extracts of G. penducalata and D. indica fruits were mixed with sodium nitroprusside and incubated. Griess reagent was added to the mixtures and their optical density was read at 546 nm following the method of Marcocci et al. (1994). Ascorbic acid was used as the standard. In order to find the scavenging activity of the extracts against hydroxyl radicals, the method of Kunchandy & Ohkawa (1990) was followed. The superoxide scavenging activity of the methanol, petroleum ether and water extracts of the fruits was determined by the method of Robak & Gryglewski (1998). Six replicates were maintained in each of the experiments and their SEM was evaluated based on which, non linear regression (curve fit), exponential growth were derived to calculate the IC50 values of the SAWE and standard compounds. All the statistical analyses were done by using paired t test. The hydroxyl radical scavenging activity of the various extracts of D. indica exhibited IC50 values < 110 ug/ml concentration, the scavenging activity of the extracts of G. penducalata was surprisingly >110 ug/ml. Similarly the oxygen free radical scavenging activity of the different extracts of D. indica exhibited an IC50 value of <110 ug/ml but the methanolic extract of the same exhibited a better free radical scavenging activity compared to that of vitamin C. The methanolic extract of D. indica exhibited an IC50 value better than that of vitamin C. The DPPH scavenging activities of the various extracts of D. indica and G. penducalata were <110 ug/ml but the methanolic extract of D. indica exhibited an IC50 value better than that of vitamin C. The higher amounts of phenolic content in the methanolic extract of D. indica might be one of the major causes for its enhanced in vitro antioxidant activity. The present study concludes that Dillenia indica and Garcinia penducalata both possess anti oxidant activities. The anti oxidant activity of Dillenia indica is superior to that of Garcinia penducalata due to its higher phenolic content

Keywords : antioxidants, free radicals, phenolic, scavenging

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