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Chemical and Biological Examination of De-Oiled Indian Propolis

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Abstract : Propolis, one of the beehive products also referred as bee-glue is sticky dark coloured complex mixture of compounds. The volatile oil can be isolated from the propolis by hydrodistillation. The mark that is left behind after the removal of volatile oil is referred as the de-oiled propolis. Antioxidant as well as anti-inflammatory properties of total ethanolic extract of de-oiled propolis (TEEDP) was investigated. Another lot of deoiled propolis was successively exacted with hexane, ethyl acetate and ethanol. Activities of these fractions were also determined. Antioxidant activity was determined by studying ABTS, DPPH and NO radical scavenging. Determination of anti-inflammatory activity was carried out by topical TPA induced mouse ear oedema model. It is noteworthy that ethyl acetate fraction of deoiled propolis (EAFDP) exhibited 49.45 % TEAC activity at the concentration 0.2 mg/ml which is equivalent to the activity of trolox at the concentration 0.2 mg/ml. Its DPPH scavenging activity (72.56%) was closely comparable to that of trolox (75%). However its NO scavenging activity was comparatively low. From IC50 values it could be concluded that the efficiency of scavenging ABTS radicals by the de-oiled propolis was more pronounced as compared to scavenging of other radicals. Studies by TPA induced mouse ear inflammation model indicated that the de-oiled propolis of Indian origin had significant topical anti-inflammatory activity. The EAFDP was found to be the most active fraction for this activity also. The purification of EAFP yielded six pure crystalline compounds. These compounds were identified by their physical data and spectral data.

Keywords : anti-inflammatory activity, anti-oxidant activity, column chromatography, de-oiled propolis
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