

Ethnopharmacological studies of *Mesembryanthemum nodiflorum*

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Abstract

Ethnopharmacological surveys conducted in Morocco allowed us to identify many plants species, the most prescribed and used in traditional medicine to treat cancer. From these species, we chose to study *Mesembryanthemum nodiflorum*. We prepared various extracts (alkaloid, cyclohexane, dichloromethane and methanolic) of the *Mesembryanthemum nodiflorum* aerial parts, the phytochemical studies revealed that the plant contains sterols, sapogenines, triterpenes, tannins and alkaloids. The chemical analysis of cyclohexane extract results in the identification of known constituents and the alkaloid extract has been studied by different chromatographic methods to isolate many fractions and to study their chemical composition. These investigations revealed the presence of hordenin. Cytotoxic activities were screened by an *in vitro* assay system of growth inhibition against two human cancer cell line, namely breast cancer cell line (MCF7) and cervix adenocarcinoma (HeLa), and the results demonstrated that all various extract of *Mesembryanthemum nodiflorum* did not show significant cytotoxic activity on MCF and Hela cells, at concentrations ranging from 31.25 to 1000 µg/ml. The antioxidant activity of various extracts of *M. nodiflorum* was evaluated by DPPH test and showed that all extract exhibited higher radical scavenging activity, as to standard used, Trolox. The dichloromethane extract of *Mesembryanthemum nodiflorum* present an anti-radical activity estimated to 94.39 ± 0.51% (p < 0.001). These results suggest that the products of *Mesembryanthemum nodiflorum* may provide a new therapeutic avenue.

Keywords: *Mesembryanthemum nodiflorum*, Cytotoxicity, Antioxidant activity, hordenin