

CITRULLUS COLOCYNTHIS AQUEOUS LEAVES EXTRACT: CYTOTOXIC AND GENOTOXIC ASSESSMENT USING A BATTERY OF TESTS

SAMEER HASAN QARI

Department of Biology, Aljmoon University College, Umm Al-Qura University, Makkah, Saudi Arabia

ABSTRACT

Citrullus colocynthis is a folk medicinal plant of Saudi Arabia. Several studies on this plant reported and focused on the biological and toxicological profile of fruits pulp. The present study focused on the cytotoxic and genotoxic potency of aqueous leaves extract of this plant. Root tip meristems of *Allium cepa* treated with different concentrations of aqueous leaves extract of *C. colocynthis*. Samples were taken out at regular intervals in each treatment and subjected to cytogenetic level (Chromosomal aberrations (CA) and micronuclei (MN) test), and molecular level assays (DNA quantity, Total soluble protein levels and RAPD-DNA profile). It was found that the extract has cytotoxic and genotoxic activities at highly concentrations. Mitotic index decreased as concentration or time of exposure increased. Frequency of (CA) and (MN) increased with increase in concentration or exposure time. Most (CA) were disturbance of chromosomes, C- metaphase and binucleate. Pyknotic nuclei cells were highly frequent at high concentration. DNA quantity and total soluble protein levels in seedlings decreased slightly at 23 gm/L of *C. colocynthis*, and inhibited substantially respectively compared with control along with the increase of *C. colocynthis* concentration at 46 and 92 gm/L following 24, 48 and 72h. of treatment. The RAPD results demonstrated a polymorphic numbers of genetic bands, which were the electrophoretic products of PCR for all treatments compared with the control. All these results strongly suggest that the leaves extract of *Citrullus colocynthis* is a clastogenic, mutagenic at high dose and anti-carcinogenic agent probably at small dose.

KEYWORDS: Citrullus Colocynthis, Cytotoxicity, Genotoxicity, Allium Cepa, RAPD, Doctorqari, Qari