

Antimutagenic Activity of a Protein, Lectin Fraction from *Urtica Dioica* L.

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Abstract : Plant lectins are non-enzymic and non-immune origin proteins that specifically recognize and bind to various sugar structures and possess the activity to agglutinate cells and/or precipitate polysaccharides and glycoconjugates. The emerging evidences showed that plant lectins contribute not only to tumour cell recognition but also to cell adhesion and localization, to signal transduction, to mitogenic cytotoxicity and apoptosis. Among chitin-binding lectins, the *Urtica dioica* agglutinin (UDA), which is a complex of different isoforms, has been poorly studied for its biological activity. In this context and according to the increasing interest for lectins as novel antitumor drugs, present paper aimed at evaluating the potential antimutagenic activity of a lectin-like glycoprotein-enriched fraction from aerial part of *Urtica dioica* L. Aim: to evaluate the potential chemopreventive properties of a protein - lectin fraction from the aerial part of *Urtica dioica*. Materials and methods: Protein - lectin fraction has been tested for the antimutagenic activity in bacteria (50-800 mg/plate; Ames test by the preincubation method) and for the cytotoxicity on human hepatoma HepG2 cells (0.06-2 mg/mL; 24 and 48 h incubation). Results: Protein - lectin fraction from stinging nettle was not cytotoxic on HepG2 cells up to 2 mg/mL; conversely, it exhibited a strong antimutagenic activity against the mutagen 2-aminoanthracene (2AA) in all strains tested (maximum inhibition of 56.78 and 61% in TA98, TA100, and WP2uvrA strains, respectively, at 800 mg/plate). Discussion and conclusions: Protein - lectin fraction from *Urtica dioica* L. possesses antimutagenic and radical scavenging properties. Being 2AA a pro-carcinogenic agent, we hypothesize that the antimutagenicity of it can be due to the inhibition of CYP450-isoenzymes, involved in the mutagen bioactivation.

Keywords : lectins, antimutagenicity, chemoprevention, *Urtica dioica*

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