

# ***Zizyphus lotus* L. (Desf.) modulates antioxidant activity and human T-cell proliferation**

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## **Abstract :**

### Background :

*Zizyphus lotus* L. (Desf.) also known as Jujube, is a deciduous shrub which belongs to Rhamnaceae family. This plant is used in Algerian traditional medicine for its anti-diabetic, sedative, analgesic, anti-inflammatory and hypoglycaemic activities. In the present study, we determined the concentrations of different vitamins (vitamin A, C and E) and fatty acids in root, stem, leaves, fruit pulp and seed of *Zizyphus lotus* L. (Desf.) and assessed the effects of their aqueous extracts on antioxidant status and human T-cell proliferation.

### Methods :

Aqueous filtrates from different parts, i.e, root, leaf, stem, fruit pulp and seed, of *Zizyphus lotus* L. (Desf.) were prepared. Vitamin C levels were determined by precipitating with 10% trichloroacetic acid and vitamin A and E were assessed by HPLC. Lipid composition of these extracts was determined by gas-liquid chromatography. Anti-oxidant capacity was evaluated by using anti-radical resistance kit [Kit Radicaux Libres (KRL@; Kirial International SA, Couternon, France)]. T-cell blastogenesis was assessed by the incorporation of 3H-thymidine. IL-2 gene expression was evaluated by RT-qPCR.

Results :

Our results show that fruit pulp contained higher vitamin A and C contents than other parts of the plant. Furthermore, the fruit pulp was the richest source of linoleic acid (18:2n-6), a precursor of n-6 fatty acids. Fruit seeds possessed higher vitamin C levels than leaves, roots and stem. The leaves were the richest source of vitamin E and linolenic acid (18:3n-3), a precursor of n-3 fatty acids. The antioxidant capacity of the different extracts, measured by KRL@ test, was as follows: pulp < seed<leaf<root < stem. As far as T-cell proliferation is concerned, we observed that the different extracts of *Zizyphus lotus* L. (Desf.) exerted immunosuppressive effects.

Conclusion :

Seed extracts exerted the most potent immunosuppressive effects on T cell proliferation and IL-2 mRNA expression. The results of the present study are discussed in the light of their use to modulate the immune-mediated diseases.

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