Preliminary phytochemical investigation of an Algerian Saharan plant

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Introduction: The genus *Zygophyllum*belongs to the Zygophyllaceae family comprises about 100 species, widely distributed in desert and steppe habitats from the Mediterranean to central Asia, South Africa and Australia. 07 species of this genus are presented here in Algeria. Previous study on *Z. simplex L.* proved the importance of their flavonols especially quercetin and isorhamnetin, with great potential for antihyperlipidemic and antioxidant effects. In the folk medicine of the North African civilizations and Arabic region, *Z. simplex L.* is knowing for the treatment of gout, asthma and inflammation (1,2).

Methodology (Material and methods):

Plant material: Arial parts of *Z. simplex* were collected from the Algerian South-East. The plant was identified by Dr. Djamel SARRI. The plant was dried in shade for 1 month, and then we cut it into small pieces.

Extraction: 200 g of *Z. simplex* was successively extracted with petroleum ether, chloroform and methanol for 3h in a Soxhlet extractor followed by evaporation of the solvent under reduced pressure.

Quantification of Total phenols: The total polyphenolic content was determined according to a modified Folin-ciocalteu described by Singleton et al.3

Quantification of Total Flavonoids: Flavonoid content was determined using the method obtained from Arvouet et al. 4

Results and Discussion: Plant parts can be either polar or non-polar. Due to the presence of a hydroxyl group,phenolic compounds are more soluble in polar organic solvents, hence methanol was chosenas the extraction solvent. In Comparison with the literature, Mahdi Belguidoum et al (2015) reported a total phenol content of 3.755 ± 0.050 mg GAE/g Crude extract of Zygophyllumalbum and 23.93± 61.90 mg GAE/100g Crude extract of Z. album.5The phenolic contentvalues in this current study differed significantly compared to those in the literature. Thismay be due to the separation method used, the solvent used, as well as the type of plant, inaddition to the presence of different amounts of sugars or ascorbic acid.

Conclusion: This study to be the first to validate the phenolic and flavonoid contents of methanolic extract of selected plant *Z. simplex* from Algeria. The results were largely acceptable. Further studies should be directed towards large-scale activities in order to isolate, examine andcharacterize individual natural compounds responsible for biological properties to verifytheir traditional uses in many medical practices.

Keywords: *Zygophyllum*, Total flavonoid, Total phenolic

References

1. Daradka, H. M. (2016) Evaluation of Hematological and Biochemical Activity of Ethanolic Extract of Zygophyllum simplex Linn. in Wistar Rats. Pakistan Journal of Biological Sciences19, 179.

2. OZENDA, P. (2004) FLORE ET VÉGÉTATION DU SAHARA (OZENDA, P., Ed.) CNRS. Paris.

3. Singleton, V. L., Orthofer, R., and Lamuela-Raventós, R. M. (1999) [14] Analysis of total phenols and other oxidation substrates and antioxidants by means of folin-ciocalteu reagent. *Methods in Enzymology299*, 152–178.

4. Arvouet-Grand, A., Vennat, B., Pourrat, A., and Legret, P. (1994) [Standardization of propolis extract and identification of principal constituents]. *Journal de Pharmacie de Belgique49*, 462–468.

5.Belmimoun, A., Meddah, B., Larbi, S., and Sonnet, P. (2017) PHYTOCHEMICAL STUDY OF ZYGOPHYLLUM ALBUM EXTRACT. *International Journal of Engineering Technologies and Management Research4*, 1–10.