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ASSESSMENT OF PHYTOCHEMICAL, ANTIOXIDANT AND ANTIBACTERIAL ACTIVITIES OF *EVERNIA PRUNASTRI* SPECIES COLLECTED FROM ALGERIA

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ABSTRACT

In this study, the phytochemical screening of lichen samples of *Evernia prunastri* collected from three different regions of Algeria (Jijel sample (JS), Setif sample (SS) and M'sila sample (MS)) was investigated. The phenolic and flavonoid contents of lichen extracts obtained by maceration in methanol were determined. The antioxidant activities of these extracts were measured by determining the total antioxidant capacity (TAC), the ferric reducing antioxidant power (FRAP) and the free radical scavenging activity using 2,2-diphenyl-1-picrylhydrazyl (DPPH). Similarly, antibacterial activity was determined by solid medium diffusion and liquid medium microdilution methods against Gram-positive and Gram-negative bacteria. The qualitative phytochemical analysis of lichen samples revealed the presence of some compounds such as saponins, flavonoids, alkaloids. For quantitative analysis, the MS methanolic extract from M'Sila region showed the highest values for phenolic and flavonoid compounds which are equal to 929.3 mg/100g and 56.34 mg/100g, respectively. This extract also shows the best antioxidant activities with the three tested methods. For antibacterial activity, the best effect was obtained for the methanolic extract from Jijel region (JS) against the methicillin resistant *Staphylococcus aureus* strain with an inhibition zone of 35.33 mm and an MIC of 0.058 mg/mL. However, the three *Evernia prunastri* methanolic extracts (JS, SS and MS) were found to be inactive against Gram-negative bacteria. The obtained results indicate that the studied extracts have interesting antioxidant and antibacterial activities, which is probably due to the presence of phenolic and flavonoid compounds.