HP-15: *Laurus nobilis* essential oil as a new strategy against bacterial resistance

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Subject description: This work focused on an essential oil (EO) of a plant species, *Laurus nobilis* (*L. nobilis*) which belongs to the Lauraceae family, one of the families most used in traditional therapy.

Objectives: The main objectives of this study were phytochemical screening and biological activities; antioxidant, antibacterial and mainly antibiofilm; of the EO of *L. nobilis* harvested from the region of Constantine.

Methods: The phytochemical screening was based on specific tests for each metabolite. Besides, the antioxidant activity of the EO was tested using two methods, DPPH and FRAP. The antibacterial activity by the well diffusion method of the EO was additionally tested on four strains; *S. aureus, B. cereus, E. coli, and P. aeruginosa*. The antibiofilm activity of the EO was also conducted on *S. aureus*.

Results and discussion: It was highlighted the presence of the main bioactive metabolites like polyphenols, flavonoids, tannins, and EO which were the most dominant. In addition, the EO recorded lower IC50 and EC50 (0.14 mg/ml and 0.13 mg/ml, respectively) having the most relevant antioxidant potency. As well as, very interesting inhibition zone diameters were recorded. The obtained results revealed that Gram + bacteria are the most sensitive to EO; where the highest inhibition value was recorded on *S. aureus* (32±0.23 mm) at a concentration of 100%. The EO also exhibited a very high antibiofilm activity on *S. aureus* with a percentage reduction of 76.1% at 100%; moderately high to that of chloramphenicol (70.3%).

Conclusion: These results can be considered as a starting point for the use of *L. nobilis* EO in the field of health as a natural ATB against *S. aureus* biofilm infections to avoid the successive use of synthetic ATBs, and therefore the reduction of bacterial resistance.

Keywords: *Laurus nobilis*, essential oil, biological activities, antibiofilm, bacterial resistance, *S. aureus*.