STUDY OF THE ANTIMICROBIAL ACTIVITY OF ESSENTIAL OILS AND FLAVONOÏDS OF *THYMUS SERPYLLUM*

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Abstract:

Thymus serpyllum L. is a medicinal plant traditionally used by local population to treat the diseases of the respiratory system.

Essential oils and flavonoïds of the air part of this species, collected in Sétif (east of Algeria), was the object of a physico-chemical and microbiological study.

The extraction of essential oils was accomplished by hydro distillation method. The efficiency was 1.14 % from 100 g of dried plant. This oil presents an index of acid, refraction and relative density respectively of 13.988, 1.447 and 0.920.

The qualitative analysis by CG/MS revealed the presence of various components such as thymol, α pinène and other substances. It should be noted that the major component of the essential oil of *Thymus serpyllum* is the thymol with 64.174 %.

Moreover, flavonoids were extracted, from 60 g of vegetal powder, according to the protocol of Markham (1982) and gave a percentage of 2.733%.

The qualitative analysis by HPLC of flavonoïds indicated the presence of sildinafil, folic acid and terbinafine.

The evaluation of the antimicrobial activity of both extracts (essential oils and flavonoïds) was made by the method of discs impregnated with different concentrations of flavonoids and essential oils, and the measure of MICs.

It was made on bacterial strains isolated from human respiratory infections in the service of resuscitation of the university hospital of Tizi Ouzou (Algéria), and identified using specific tests and biochemical galleries.

Bacterial strains used for the antimicrobial activity was: *E. coli*, *Klebsielle pneumonea*, *Staphylococuus aureus*, *Staphylococuus pneumonea*, *Pseudomonas aeruginosa*, *Pseudomonas fluoressens*. The only yeast for this study was *Candida albicans*

The results showed a remarkable effect on the different bacterial strains for both extracts. The most resistant bacteria is *Klebsielle pneumonia*. However, *Candida albicans* seems to be very sensitive for the both extracts.

Key words: *Thymus serpyllum*, Essential oils, Flavonoïds, GC/MS, HPLC, Respiratory infections, Antimicrobial activity.