EXTRACTION, HEMI-SYNTHESIS OF FUROCOUMARIN DERIVATIVE AND EVALUATION OF THEIR ANTIMICROBIAL ACTIVITY

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Introduction & Objectives:

Furocoumarins represent a structurally varied group of natural compounds that are in most cases derivatives of the linear furocoumarin psoralene [1]. The increased interest in the study of furocoumarins is explained by the important role that these compounds play in the vital activity of plant and animal organisms and also by their high and diverse biological activity [2]. Modification of furocoumarin systems is mainly achieved by the introduction of substituents into the furan or benzopyran-2-one fragments of the molecule [3].

Methodology (Material and methods):

Xanthotoxin (linear furocoumarin) was extracted from Algerian *Ruta Montana* using soxhlet method, purified and characterize with UV-Vis, IR and NMR, and then modified at the exocyclic oxygen atom with Phosphorus Pentasulfide (P_2S_5) in carbon disulfide and with hydrazine monohydrate in alcohol medium.

All the synthesized compounds were screened for their antimicrobial activity against bacterial and fungal strain using disk diffusion method.

Results and Discussion:

The chemical structure of xanthotoxin was confiremed by different spectroscopic methods as well as their corresponding thione and hydrazone.

An increase in antibacterial activity was observed using the modified compounds compared with the xanthotoxin.

Conclusion:

The aim of the present work was to extract, purify and characterize a linear furocoumarin from Algerian *Ruta Montana,* and then its derivatives thione and hydrazone were obtained. It was observed that substitution of the carbonyl group in xanthotoxin by thione or hydrazone groupe led to an improvement in its antimicrobial activity.

Keywords: *Ruta montana* L., furocoumarin, thione, hydrazone, antimicrobial activity.

References

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