Pharmacophore 2013, Vol. 4 (3), 89-91 ISSN 2229 – 5402 USA CODEN: PHARM7

Pharmacophore

(An International Research Journal)

Available online at http://www.pharmacophorejournal.com/

Original Research Paper

CHEMICAL COMPOSITION AND ANALYSIS ANTIFUNGAL PROPERTIES OF *RANUNCULUS ARVENSIS* L

Ahlam Hachelaf[1]*, Amar Zellagui[2], Ahmed Touil[3] and Salah Rhouati[3]

[1]University of M'sila, Algeria

[2]Laboratory of Natural Products and Organic Synthesis, Faculty of science, University Mentouri, Constantine, Algeria

[3]Department of Chemistry, University of El Arbi Ben M'hidi Oum El Bouaghi, Algeria

ABSTRACT

Because of the importance of medicinal plants in traditional medicine, and its undeniable fact that herbal medicine play a corner stone in the health care in a very large section of population all over the word. Phytochemical studies carried out on various *Ranunculus* species revealed different secondary metabolites groups. The preliminary screening of *Ranunculus arvensis* showed the presence of carbohydrates, protein and amino acids, glycosides, phenolic compounds, steroids, di and tri terpenes, coumarins and flavanoids. And in order to know the biological activity of the crude medicinal plants, we are examining its activity against variety kinds of germs. The results investigated to have in interesting activity antifungal. But the study is necessary to complete by the studies identified bioactive molecules.

Keywords: *Ranunculus arvensis*, Phytochemical screening, Secondary metabolites, Antifungal activity.

INTRODUCTION

Phytochemical investigation is becoming an interdisciplinary area involving biologists, chemists, pharmacists, biochemists and phytochemists are no longer interested in a specific class of plant constituents but are mainly searching for new biologically active compounds. [1] So isolation of pure plants materials which still remains a crucial step, has to be guided by an appropriate bioassay. The genus ranunculus of the family *ranunculaceae* is represented in the flore from Algeria by 50 species. The genus ranunculus is known to produce flavonoids, triterpenes, saponins and coumarins, all of these classes of compounds are well known for their important biological activities. Diverses species of ranunculus knowing, that many medicinal plants are used in traditional medicine. Among these plants R. arvensis belongs to the ranunculaceae family it extends in the Est region of Algeria. Annual plants with many leaves and yellow flowers .[2-3] It varies in size between wand 60 cm. The *R. arvensis* is rich in secondary metabolites such as flavonoids, polyphenols, terpenes, alkaloids and coumarins etc. These compounds are responsible for its therapeutics properties. In our work, we were interested in separation and purification of secondary metabolites after screening phytochemical. [4]

MATERIALS AND METHODS

Plant Material

R. arvensis was collected from the region of Mila located in East of Algeria in mars 2000. This

plant was identified by professor Kaabache, department of biology, university of Setif. A voucher specieman has been deposited at herbarium institute of Pharmacognosy.

Phytochemical Screening

Dried and powdered aerial parts (20g) were extracted with 500ml of distilled water. Aqueous plants extracts was screened for the presence of secondary metabolites: saponins, flavonoids, coumarins and terpenes. In test tubes using a variety of reagents for detection as colorimetric methods described by many works.[5-6]

RESULTS AND DISCUSSION

Phytochemical screening revealed the presence of a variety of molecules according to colorimetric methods: alkaloids (brun precipitate), flavonoids with orange and pink colors, phenolic acid (yellow), coumarins (yellow fluorescently under UV light), saponins (presence of foam) [Table1]. This study concerns the establishment of chemical screening or *R. arvensis* several investigation reported that this plants reveal the presence of some chemical groups (flavor, coumarins…). [7, 8, 9]

Antifungal Activity of *Ranunculus arvensis*

Test antifungal

The test of antifungal activity of secondary metabolites of ranunculus arvensis L. was tested on isolated of fungi species (*Candidas albicans, Aspergillus niger, A clavatus, Penicillium digitatum*).[10-11]

Diffusion discs methods was used for antifungal activity. The extract showed antifungal activity against…At the concentration of (10-20µg/ml). Then wells (6 mm) were made in the medium using sterile cork borer. The plates were incubated at 27°C for 48 – 72 hrs. After the incubation the plates were observed for formation of clear incubation zone around the well indicated the presence of antifungal activity. The zone of inhibition was recorded. [12, 13, 14]

For fungal activity, the results show that extract from this plant have significant antifungal activity. *C. albicans* shows good result as compare with *A. niger* and *A. clavatus*. The growth inhibition zone measured ranged from 14 to 21 mm for fungal strains [Table 2].[15, 16, 17]

CONCLUSION

In the current investigation, the aqueous extract gave higher yield of chemical constituents expected for this research work. The extracts of *Ranunculus arvensis* were found to be active on most of the clinically isolated fungi,. The present study justified the claimed uses of this plants to treat various infectious disease caused by the microbes. However, further studies are needed to better evaluate the potential discovery of new natural bioactive compounds. However, this study allowed a better knowledge of the phytochemistry of *Ranunculus arvensis* plants, and the isolation of the natural products with interesting biological and pharmacological properties.

ACKNOWLEDGMENT

The authors of this paper are thankful to the microbiology laboratory of Constantine Algeria. India for providing all the research work facilities.

Table 1: Results of reactions tubes: The aqueous extract of *Ranunculus arvensis* L.

Search	Results
Tanins : FeCl3 à 10%	+ + +
Tanins : HCl concentré	+ + +
Tanins : réactions de Stiasny	+ + +
Leucoanthocyanes	+ +
Coumarines	+ +
Composés réducteurs	+ +
Stérols et tri terpènes	+ +
Polyuronides (Mucilage)	+ +
Saponosides : foam	+ +
Saponosides : foam index	143,33

+ + + : Very positive response; + + : Moderately positive reaction; + : Weakly positive reaction

Table 2: Effect of antifungal activity of *Ranunculus arvensis*

Microorganism	Antifungal activity (Zone of inhibition) in mm
Candidas albicans	21
Aspergillus niger	16
Aspergillus clavatus	14
Penicillium digitatum	17

REFERENCES

1. Davis, PH and Mill, RR, *et al.* (1988), "***Ranunculus L. In: Flora of Turkey and the East Aegean Islands Supplement***",Vol 10, Edinburgh University Press,18-22, 231.
2. Iranshahr, M *et al.* (1992), "***Ranunculaceae Flora Iranica***", Akad. Druck- u. Verlagsanstalt, Graz., Vol. 171,1-249.
3. PH., Davis *et al.* (1965), "***Ranunculus L. (Ranunculaceae)***", Flora of Turkey and the East Aegean Islands, Edinburgh University Press, Edinburgh,Vol. 1, 146.
4. Gluchoff-Fiasson, *et al.* (1997), "Quercetin glycosides from European aquatic Ranunculus (subgenus Barachium) species", ***Phytochemistry*** (in press).
5. Harborne, JB and Baxter, H(1999), "***The Handbook of Natural Flavonoids***", Vols 1 and 2, John Wiley and Sons, Chichester, UK.
6. Weber,WR and WT, Corcoran (1993), "***Atlas of Missouri Vascular Plants***", Southwest Missouri State University and the Missouri Native Plant Society.
7. Yatskievych, G and J, Turner (1990), "***Catalogue of the Flora of Missouri***", Monographs in Systematic Botany from the Missouri Botanical Garden 37,Missouri Botanical Garden, St. Louis.
8. Hollman,PCH; Hertog, MGL and Katan, MB(1996), "Analysis and health effects of flavonoids".,***Food Chem.***, 57, 43-46.
9. Cowan, MM (1999), "Plant products as antimicrobial agents", ***Clin Microbiol Rev***, 12,564-82.
10. Stace, C (1991), "***New Flora of the British Isles***", Cambridge University Press, Cambridge.
11. Sterry, P (1997), "Complete British Wildlife Photo Guide", Harper Collins Publishers, London.
12. Prieto, JM; Recio, MC; Giner, RM *et al.* (2003), "Pharmacological approach to the pro- and anti-inflammatory effects of *Ranunculus sceleratus* L. ", ***J Ethnopharmacol***, 89,131-137.
13. Rios, JL; Recio, MC and Villar, A (1988), "Screening methods for natural products with antimicrobial activity: A review of the literature", ***J Ethnopharmacol***, 23,127-49.
14. Runyoro, D *et al.* (2006), "Screening of Tanzanian medicinal plants for anti-Candida activity", ***BMC Complement Altern Med.***, 6,11.
15. Mares, D (1987), "Antimicrobial activity of protoanemonin, a lactone from ranunculaceous plants", ***Mycopathologia***, 98,133-140.
16. Grigson, G (1996), "***The Englishman's Flora***", Helicon Publishers Ltd, Oxford.
17. Mabey, R (1996), "***Flora Britannica. Sinclair-Stevenson***", London.

Correspondence Author:
Ahlam Hachelaf
Email: hachelafahlamo@gmail.com

Cite This Article: Ahlam, Hachelaf; Amar, Zellagui; Ahmed, Touil and Salah, Rhouati (2013), "Chemical Composition and Analysis Antifungal Properties of *Ranunculus arvensis* L", ***Pharmacophore***, Vol. 4 (3), 89-91.