

ANTIFUNGAL ACTIVITIES OF

Scabiosa rotata Bieb.

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Key Word Index

Scabiosa rotata Bieb., Dipsacaceae, saponin, antifungal activity

ABSTRACT

The antifungal activities of the crude saponin and saponin fractions of *Scabiosa rotata* have been investigated in this paper.

The antifungal activities of *Scabiosa rotata* are examined against the microorganisms namely *Candida albicans*, *Microsporum canis*, *Tricophyton rubrum* and *Aspergillus niger*.

INTRODUCTION

Scabiosa genus has been drawn attention with its various utilisation as a folk remedy. The root of the plant which has wide usage because of its biological activity is used in the initial stage of severe disease related to respiratory system due to its expectorant properties. It has secretion enhancing activity in bronchitis and cold. The extrafluid prepared from the roots has been used in bronchopneumonia, pulmonary bleeding and bronchitis as well. It has been reported that the plant was found effective in inflammation of mouth and tongue and dermal infections of farm animals and its usage in such cases has been recommended. The root of the plant has also astringent property. It has also been reported that the plant has diuretic, wound healing, and antidiarrheal activities¹⁻⁴.

It has been aimed to obtain the crude saponin fractions of *Scabiosa rotata*, and to determine antifungal activity of the fractions.

MATERIALS AND METHODS

Plant Materials

The samples have been collected from the following region:

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(**) Unit of Microbiology, Faculty of Pharmacy, Gazi University, 06330 Ankara-TURKEY.

A4 Çankırı, Ilgaz in the vicinity of Kesicik village; on the way margin in the entrance of Kiyısın (ca 1250 m, 10.07.1994)

A4 Ankara, the highway to Istanbul, on the way margin at Ostim junction (ca 850m, 13.04.1995)

Preparation of *Scabiosa rotata* extracts

The dried and powdered roots of *Scabiosa rotata* were extracted with petroleum ether initially and then methanol several times at room temperature, combined methanolic extracts were evaporated. Thus obtained crude saponin was precipitated by cold acetone from methanolic extract and evaporated to dryness in vacuo and weighted. Crude saponin fractions obtained from crude saponin by the column chromatography were used in the screening of antifungal activity.

Microbiological Studies

Media and Fungi: Sabouraud Dextrose Agar (Oxoid) was employed for growing the fungi. Sabouraud Liquid Medium (Oxoid) was used for preparations of microorganism suspensions, and for diluting and dissolving of substances.

Fungi

Candida albicans, yeast-like fungus;

Tricophyton rubrum, *Microsporum canis*, *Aspergillus niger* moulds.

All micro-organisms were obtained from the Laboratory of Microbiology, Faculty of Medicine, Gazi University, Ankara.

Method

The Tube Dilution Method was employed for the antifungal activity testing. The crude saponin, and saponin fractions and *Saponinum purum album* which believed to have antifungal activity (0 "control", 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600 µg/ml) were prepared in test tubes by diluting with Sabouraud Liquid Medium⁵. The was made as follows:

	Concentration (mg/ml)													
	1600	1400	1200	1000	900	800	700	600	500	400	300	200	100	0
I	80	70	60	50	45	40	35	30	25	20	15	10	5	0
II	20	30	40	50	55	60	65	70	75	80	85	90	95	100

- (I) The crude saponins, crude saponin fractions and *Saponinum purum album* which is known to have antifungal activity
- (II) Sabouraud Liquid Medium

RESULT

Saponinum purum album, crude saponin and saponin fractions obtained from roots of *Scabiosa rotata* Bieb. by the column chromatography.

Activities of the substances used were found equal against *Microsporium canis* and *Tricophyton rubrum*. All the substances have exhibited higher activity against *Candida albicans* and reasonable effect against of *Aspergillus niger*.

Table 1: Antifungal activities of crude saponin and crude saponin fractions of *Scabiosa rotata* Bieb. (mg/ml)

	A	B	C	D
Crude Saponin	800	300	800	500
14-27 fraction	800	300	800	500
38-43 fraction	800	300	800	500
52-59 fraction	800	300	800	500
<i>Saponinum purum album</i>	800	300	800	500

A: *Microsporium canis*

C: *Tricophyton rubrum*

B: *Candida albicans*

D: *Aspergillus niger*

Antifungal activity of *Scabiosa rotata* Bieb. were investigated in this studies.

Antifungal activities of crude saponin and saponin fractions obtained from *Scabiosa rotata* Bieb. have been studied against *Candida albicans*, *Aspergillus niger*, *Microsporium canis* and *Tricophyton rubrum*. In this study, the result have shown that the saponin fractions are active against *Microsporium canis* and *Tricophyton rubrum* at 800 mg concentration. The highest activity has been observed against *Candida albicans* at 300 mg concentration. The substances were found active against *Aspergillus niger* at 500 mg concentration (Table 1).

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Received: 17.1.1997

Accepted: 6.3.1997