

THE ANTIFUNGAL AND ANTIBACTERIAL ACTIVITY OF TWO PLANTS FROM ASTERACEAE

D.S.ALTINER*, E.GÜRKAN**, E.P.KÖKSAL**, G.MUTLU**,
D.T.KÜNEY***, E.TUZLACI****

SUMMARY

In this study, we have found that, *Chrysanthemum coronarium* has shown antifungal and antibacterial activity, but *Inula viscosa* didn't show any antifungal or antibacterial activity.

Key words: *Chrysanthemum coronarium*; *Inula viscosa*; antifungal and antibacterial activities.

INTRODUCTION

The aerial parts of *Chrysanthemum coronarium* L.(Asteraceae) were collected in May,1996 from Milas-Muğla. The aerial parts of *Inula viscosa* (L.) Aiton (Asteraceae) were collected in September 26,1996 from Riva, İstanbul. The plants were identified by Ertan Tuzlacı. Voucher specimens are deposited in the Herbarium of the Faculty of Pharmacy, University of Marmara (MARE 4827,5301). *C.coronarium* is used as anthelmintic¹ and insecticide²; *I. viscosa* is used for the treatment of wounds³.

* Faculty of Pharmacy, Department of Biochemistry, University of Marmara, 81010, İstanbul, Turkey.

** Faculty of Pharmacy, Departments of Pharmacognosy, University of Marmara, 81010, İstanbul, Turkey.

*** Faculty of Medicine, Department of Microbiology and Clinical Microbiology, University of İstanbul, Çapa, İstanbul, Turkey.

**** Faculty of Pharmacy, Departments of Pharmaceutical Botany, University of Marmara, 81010, İstanbul, Turkey.

RESULTS AND DISCUSSION

The results are listed in Table 1.

Table 1: Antibacterial and antifungal activities of *C.coronarium* and *I.viscosa* extracts

Test Organism	<i>C.coronarium</i> ext. (60µg/disc)	<i>C.coronarium</i> ext. (60µg/disc)	<i>I.viscosa</i> ext. (60µg/disc)	<i>I.viscosa</i> ext. (60µg/disc)	Standard
Bacteria	EtOH	Petrol-Et ₂ O (2:3)	Chloroform	Petrol-Ether-MeOH(1:1:1)	Ceftazidime (30µg/disc)
<i>S.aureus</i> ATCC 25923	-	-	-	-	21
<i>S.epidermidis</i> ATCC 12228	-	-	-	-	25
<i>L.monocytogenes</i> KUEN 138	-	-	-	-	R
<i>P.aeruginosa</i> ATCC 27853	-	-	-	-	32
<i>E.Coli</i> ATCC 25922	-	-	-	-	27
<i>C.diphtheriae</i> KUEN 1488	-	-	-	-	22
<i>S.pyogenes</i> NCTC 8230	11	-	-	-	25
<i>E.faecalis</i> ATCC 29212	-	-	-	-	22
Yeasts	-	-	-	-	Miconazole (10 µg/disc)
<i>C.pseudotropicalis</i> KUEN 1014	-	-	-	-	11
<i>C.crusei</i> ATCC 6285	-	10	-	-	19
<i>C.tropicalis</i> KUEN 1025	10	10	-	-	18
<i>C.guilliermondii</i> KUEN 998	-	-	-	-	30
<i>C.albicans</i> ATCC 10231	-	-	-	-	21

Values are inhibition zone diameter (mm); -: No inhibition; R: Resistant

The petroleum ether –diethylether (2:3) extract of *C.coronarium* has shown antifungal activity against two, (*C.crusei* and *C.tropicalis*) of the five yeasts. The ethanol extract of *C.coronarium* has shown antibacterial activity against one (*C.tropicalis*) of the 8 bacteria investigated. The chloroform and petroleum ether- ether –methanol (1:1:1) extracts of *I.viscosa* didn't show any antifungal or antibacterial activity.

EXPERIMENTAL

The air-dried and powdered aerial parts of *C.coronarium* were extracted with petroleum ether-diethylether (2:3)⁴ and ethanol⁵. The air-dried and powdered aerial parts of *I.viscosa* were extracted with chloroform and with petroleum ether-ether-methanol (1:1:1)⁶. The extracts were evaporated to dryness. The Disc Diffusion Test⁷ was spread according to the N.C.C.L.S. rules. 24 hrs cultures containing 10⁸/ml microorganisms were used. The extractive amounts were prepared as 60 mg/ml in DMSO and discs which were 5mm in diameter were used. The incubation time was 48 hrs at 30°C for yeasts and 24 hrs at 37°C for bacteria. Miconazole (10µg/disc) for the yeasts and ceftazidime (30µg/disc) for the bacteria were used as standards and DMSO was used as control. Sabouraud Dextrose Agar and Sabouraud Dextrose Broth for the yeasts, Sheep Blood Agar for *L. monocytogenes*, *C. diphtheriae* and *S. pyogenes*, Mueller Hinton Agar and Mueller Hinton Broth for the other bacteria were used as media. Sabouraud Dextrose Agar and Sabouraud Dextrose Broth for the yeasts, Sheep Blood Agar for *L.monocytogenes* *C.diphtheriae* and *S. pyogenes*, Mueller Hinton Agar and Mueller Hinton Broth for the other bacteria were used as media.

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