کارکاه های آموزشی مرکز اطلاعات علمی جهاد دانشگاهی

کارکاه آنلاین بررسی مقایسه ای منون (مقدماتی)

کارکاه آنلاین پروپوزال بررسی نویسی و پایان نامه نویسی

کارکاه آنلاین آشنا با پایگاه های اطلاعات علمی بین‌المللی و ترفندهای جستجو
SCREENING OF IRANIAN PLANTS FOR ANTIFUNGAL ACTIVITY: PART 2


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ABSTRACT

In this study, 278 species from 37 families of native Iranian plants were screened for in vitro antifungal activity against 19 fungal strains. Initially, the crude extracts in concentration of 100 µg/ml were tested. Among 278 plant extracts, 201 (71.27%) of them showed antifungal activity against at least one fungal strain. A wide range of total extracts of different species were shown to have potentially noticeable antifungal effects. The outstanding species were: Mentha longifolia, Salvia multicaulis, Thymus transcaucasicus, Zataria multiflora, Glyceria glabra, Hedihemia persica, Heracleum persicum, Pimpinella anisum, Pragnos ferulacea, Pragnos uloptera, and Vioia odorata.

Keywords: Iranian plants, Antifungal activity, Leguminosae family, Labiateae

INTRODUCTION

As a result of a joint project on medicinal plants between the Department of Pharmacognosy, and Department of Medical Parasitology and Mycology, the biological activities of some native Iranian plants have previously been reported (1-3). In continuation of this project, antifungal activity of a number of other native Iranian plants is reported in this paper. The plants of this investigation were gathered from different locations of Iran since 1984 and some of them are usually used by rural inhabitants as herbal medicine.

MATERIALS AND METHODS

Plant material:
The plants materials were collected from different regions of Iran and dried under laboratory condition. The voucher specimens were prepared and authenticated (4-7). The herbarium samples are kept at the Herbarium of Department of Pharmacognosy, School of Pharmacy, Tehran University of Medical Sciences.

Extraction procedure:
The air-dried plant materials were grounded into fine powders and extracted in a soxhlet extractor with 80% methanol. After filtration of total extracts, the solvents were removed under reduced pressure and residues were kept in sterile vials with certain codes at 4°C.

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<tr>
<th>No.</th>
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<td>Microsporum canis</td>
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<td>10</td>
<td>Trichophyton rubrum</td>
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Antifungal screening:
The crude extracts were tested in concentration of 100 µg / ml against organisms listed in Table 1, by the general procedure described previously (8). The fungi were cultured on Sabouraud Dextrose Agar and the growth of fungi was achieved at 25-

Correspondence: Dr. Gh. Amin, Department of Pharmacognosy, Faculty of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran. Fax: 6461178, E-mail: amin@sina.tums.ac.ir
<table>
<thead>
<tr>
<th>Table 2. Iranian plants tested for antifungal activity (Wa: Whole above ground, Fr: Fruit, Fl: Flower, B: Bulb, L: Leaves, W: Whole plant)</th>
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### Table 2. Continued

<p>| Family Name | Botanical Names | Part | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| Thymelaeaceae Daphne macrantha Koyle | Ws | - | - | - | - | - | + | - | - | - | + | + |
| Thymelaeaceae Daphne oleoides Scherb. | Ws | - | - | - | - | + | - | - | - | + | - | - | - | - | - | - | - | - | - | - |
| Thymelaeaceae Daphne oleoides Scherb. var. cordata Hamm. | Ws | - | - | - | - | + | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Thymelaeaceae Dendrostelium linearifolium (Wiel.) Van Tiegh. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Typhaceae | Arum elongatum Stev. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Typhaceae | Typha latifolia L. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Utriculariaceae | Kutsia caucasia Wild. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Anethum graveolens L. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Apium graveolens L. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Bupleurum falcatum L. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Carum carvi L. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Dicrotropis acanthostachys DC. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Dichopogon glomeratus DC. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Eleutherocarpus siamensis DC. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Eryngium Bungei Boiss. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Eryngium thyrsiferum Boiss. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Ferula gummosa Boiss. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Foeniculum vulgare (Schlecht.) Boiss. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Foeniculum vulgare Mill. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Heracleum persicum Desf. ex Fischer. | Fr | - | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Umbelliferae | Pimpinella anisum L. | Ws | - | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Umbelliferae | Pimpinella anisata DC. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Pimpinella Kotschyi Boiss. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Pimpinella pueri DC. (DC.) Boiss. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Prangos ochroleuca Boiss. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Prangos polycera Boiss. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Prangos squamata DC. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Prunus persicae DC. | Ws | - | - | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Umbelliferae | Pyrrosia dilatata DC. (DC.) Var. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Pyrrosia spinosa DC. ex Boiss. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Saccharum officinarum L. | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Scrophularia nodosa (L.) Kotschy-Pol | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Sinapis aspera (L.) Link | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Umbelliferae | Tomis gerasimbi (Huds.) Link | Ws | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |</p>
<table>
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<tr>
<th>Family Name</th>
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<td>Umbelliferae</td>
<td><em>Urginea latifolia</em> (L.) Hoffm.</td>
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<td><em>Tribulus terrestris</em> L.</td>
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<td><em>Zygophyllum stiplicoides</em> Fisch. &amp; C.A. Mey.</td>
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<td>Zygophyllaceae</td>
<td><em>Zygophyllum europaeum</em> Boss. &amp; Buss.</td>
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<td><em>Zygophyllum fabago</em> L. subsp. <em>orientale</em> Boss. ex H.</td>
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<td>Zygophyllaceae</td>
<td><em>Zygophyllum propinquum</em> Deese.</td>
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| Number of (+) | 20 | 22 | 6 | 125 | 78 | 19 | 67 | 65 | 79 | 56 | 91 | 9 | 7 | 2 | 16 | 8 | 9 | 1 | 1 |
| Blank          | 22 | 57 | 182 | 32 | 97 | 255 | 121 | 130 | 97 | 138 | 115 | 225 | 221 | 243 | 102 | 242 | 224 | 241 | 242 |
| Number of (−)  | 240 | 203 | 94 | 125 | 107 | 8 | 94 | 87 | 106 | 88 | 78 | 48 | 54 | 37 | 164 | 32 | 49 | 40 | 39 |
35 °C after 72-168 hr of incubation. The antifungal activity of the extracts were expressed by two symbols as "-" (no effect), and "-" (complete growth inhibition)(8). For dermatophytes strains, Cephalosporin and for the rest of the strains Amphotericin B, were used as positive control and as negative control methanol was used in the antifungal assay (9).

Microorganisms
The used strains are shown in Table 1. All strains were isolated from local patients and were identified and classified by the medical mycologists in the School of Public Health of Tehran University of Medical Sciences. The strains were recultured and used for this study.

RESULT AND DISCUSSION
Scientific name of the identified plant species and the results of their antifungal activity are listed in Table 2 and have arranged alphabetically according to their botanical names of plant families. As shown in Table 2, of the 278 extracts of Iranian native species belonging to 37 plant families, 201 extracts have antifungal effects against one or more fungal strains.

The most effective plants were: Mentha longifolia, Salvia multicaulis, Thymus transscopicus, Zataria multiflora, Glycyrrhiza glabra, Hulthenia persica, Heracleum persicum, Pimpinella anisum, Prunus serotina, Prunus utopea, and Viola odorata that exhibit activity against at least 50% of fungal strains. The most sensitive fungal strains were: Trichophyton violaceum (70.3%), Epidermophyton floccosum (54.49%), Microsporum canis (50%), Trichophyton schoenleinitii (42.76%), Trichophyton mentagrophytes (42.70%), Microsporum gypseum (42.16%), Trichophyton verrucosum (41.61%) and Trichophyton rubrum (38.88%).

Of all the plants investigated, the Loganiaceae family with 34 active species (82.92%) was highly ranked. The second and third most effective families were, Labiatae and Umbelliferae, which exhibited 42 (76.36%) and 19 (67.85%) bioactive members, respectively.

Reviewing the literature (9-15) revealed that, the noticeable species of this investigation have not been reported previously. These worth attending results are due to specific geobotanical and climatical conditions of Iran that may facilitate production of active substances in comparison with the same species growing wild in the other lands. We wish these results may provide a basis for the isolation of active compounds from these medicinal plants.

ACKNOWLEDGEMENTS
This study was supported by Tehran University of Medical Sciences. The authors wish to express their thanks to all students who had cooperated in this investigation during the period of their thesis.

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کارگاه آنلاین پروپوزال نویسی و پابان نامه نویسی

کارگاه آنلاین سیستم‌های مطالعاتی و ترفند های جستجو