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In vitro Antioxidant Activity and Phytochemical Screening of Flowers and Leaves of *Hypericum perforatum* L. Ethanolic Extracts from Tonekabon-Iran

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Abstract

Medicinal plants are an important source of phytochemicals that offer traditional medicinal treatment of various ailments. This research set to assess phytochemicals in the ethanolic extracts of *Hypericum perforatum* L. leaves and fowers by quantitative and qualitative screening procedures. The *Hypericum perforatum* L. fowers and leaves were gathered, and the extract was provided from ethanol (5%) by microwave assisted extraction (MAE). The phytochemical assessment was done applying standard methods & the phytochemical evaluation by using standard methods. The total phenolic contents of ethanolic extracts were estimated by Folin Ciocalteau method and total favonoids contents were determined by the Aluminium Chloride Colorimetric method. Ethanolic extracts invitro antioxidant activity was assessed by via evaluating 1,1-diphenyl-2 picrylhydrazyl (DPPH) radical scavenging activity by the standard method. Ethanolic extracts from fowers and leaves of *Hypericum perforatum* L. showed total phenolic contents of (15.32 ± 0.07) and (7.39 ± 0.43) mg GAE/g dry plant material respectively. Total favonoid contents of ethanolic extracts from leaves and fowers of *Hypericum perforatum* L. were (1.09 ± 0.08) and (0.38 ± 0.05) mg QE/g dry plant material, respectively. The antioxidant activity of the investigated ethanolic extract of leaves and fowers of *Hypericum perforatum* L. were scavenging ability of DPPH radical scavenging activity and IC_{50} value (89.45% to 2.15 ± 0.02) and (74.77% to 1.96 ± 0.06) mg/ml respectively. The ethanolic extract of leaves and fowers of *Hypericum perforatum* L. contains terpenoids, favonoids, phenols, tannins, cardiac glycosides, quinones and phlobatannins. This study may contribute to drugs development to cure different diseases.

Keywords: *Hypericum perforatum* L.; [illegible]

Introduction

[illegible]

[illegible] [10]. [illegible] [11]. [illegible] [12,13]. [illegible] *Hypericum perforatum* L. [illegible] [14-16]. *Hypericum perforatum* L. [illegible] [17-20], [illegible] [21], [illegible] [22], [illegible] [23,24], [illegible] [25], [illegible]-HIV [illegible] [26], [illegible] [27-32]. [illegible] *Hypericum perforatum* L. [illegible]

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Material and Method

A c e ca a d ea e ad a a ca ade . F e a e ea e f *Hypericum perforatum* L. e ec ected f Se e a (N 36 37′, E 50 50′; a 2650 a de) T e ab I a A 2015 a d e a a de ed b Fa ba e a Heba (I a c A ad U e - T e ab B a c). e ea e a d e d ed a d ade de. 10 f de f ea e a d e f *Hypericum perforatum* L. e ec b ed 5% e a e ed c a e ad a a 300 W; e a ad a ed c a e e (de GE280S) a e a e a (10 ad a a d 3). A e e act e e act a c ed d e ea e e ee e e a e. e e act a e ed e W a a ' F e N . 1 e a e. e e t a e a a ed de ac a a e a a (de LABOROTA 4001) a d a , ed ef e a a 40 C f e e.

e e a c e act f ea e a d e f *Hypericum perforatum* L. a f b ected a c e ca e e e t de ect a c e t b a da d e d [33-37]. Q a a e c e ca a a f e a c e act f ea e a d e f *Hypericum perforatum* L. e e d e a e e a da d e d . Fe d f 1% NH(H e c b40.102 T T- ca a a 87 G15)0.549 489[(e .)0.6 (F9778 19.1 (F97 1 Tf- 2 .)0.b H)]T 3 4 (

e a c ee f ed c a a e a bee d e a e e e a d e a c e ca a a e. P c e ca c ee e a de ca f e ce f d a a d e a e ca a ab e c d ed c a ca ce, e c e e a a ea a a ab e. e e c e ca a e a da , a a a , a ca ce , a -bac e a , a -d abe c, a e c, a e e c, a c a , a e c, a a e c, a -a c, eda e, a e e c, -c e e e c, a d e a ec e ac e [49-58]. T a e c e f e e ac a d ca ed ba ed F C ca e ced e a d a ed f a c ac d e a e e (GAE/) f e ac , a e a da d c e (=26.64 - 0.042 a d R^2 =0.998). T a e c e e a c e ac f a d e a9]T 0 5-2.878(a e e a 9 0.231 T 9 -((GA1.0251 5 e H

6. Chen FW, Shieh P, Kuo D, Hsieh C (2006) Evaluation of the antioxidant activity of Ruellia tuberosa. Food Chem 94: 14-18.

7. Erkan N, Ayranci G, Ayranci E (2008) Antioxidant activity of rosemary (Rosmarinus offcinalis) extract, Black seed (Nigella sativa) essential oil, carnosic acid, rosmarinic acid and sesamol. Food Chem 110: 76-82.

8. Mantle D, Eddeb F, Pickering AT (2000) Comparison of relative antioxidant activities of British medicinal plant species *in vitro*. Ethnopharmacol 72: 47- 51.

9.

the phytochemical composition of the leaves of five Nigerian medicinal plants. J Biotechnol Pharm Res 3: 42-46.

55. Hussain I, Ullah R, Ullah R, Khurram M, Ullah N, et al. (2011) Phytochemical analysis of selected medicinal plants. Afr J Biotechnol 10: 7487-7492.

56. Aiyegoro OA, Okoh AIR (2010) Preliminary phytochemical screening and *in vitro* antioxidant activities of the aqueous extract of Helichrysum longifolium DC. BMC Complement Altern Med 10: 21.

57. Olaleye MT (2007) Cytotoxicity and antibacterial activity of methanolic extract of Hibiscus sabdariffa. J Medicinal Plants Res 1: 9-13.

58. Patel DK, Kumar R, Prasad SK, Sairam K, Hemalatha S (2011) Antidiabetic and *in vitro* antioxidant potential of Hybanthus enneaspermus linn f. muell in streptozotocin-induced-diabetic rats. Asian Pac J Trop Biomed 1: 316-322.

59. Parekh J, Jadeja D, Chanda S (2005) Efficacy of aqueous and methanol extracts of some medicinal plants for potential antibacterial activity. Turk J Biol 29: 203-210.

60. Orhan N, Hosbas S, Deliorman OD, Aslan M, Ergun F (2014) Enzyme inhibitory and radical scavenging effects of some antidiabetic plants of Turkey. Iran J Basic Med Sci 17: 426-432.

61. Doss A, Mohammed Mubarak H, Dhanabalan R (2009) Antibacterial activity of tannins from the leaves of Solanum trilobatum Linn. Indian J Sci Technol 2: 41-43.

62. Bown Deni (1995) The Royal Horticultural Society. Encyclopaedia of Herbs and their uses. Dorling Kindersley Book.

63. Chiej R (1988) The Macdonald Encyclopoedia of Medicinal Plants. 1984, reprinted 1988. Macdonald Orbis.

64. Foster S, Duke JA (2000) A Field Guide to Medicinal Plants and Herbs. 2nd Ed. Boston: Houghton Miffin Company.

65. Malairajan P, Gopalakrishnan G, Narasimhan S, Veni KJK (2006) Analgesic activity of some Indian medicinal plants. J Ethanopharmacol 106: 425-428.

66. Han X, Shen T, Lou H (2007) Dietary Polyphenols and Their Biological Significance. Int J Mol Sci 8: 950-988.

67. Lu L, Liu SW, Jiang SB, Wus G (2004) Tannin inhibits HIV-1 entry by targeting gp 41. Acta Pharmacol Sin 25: 213-218.

68. Kolodziej H, Kiderlen AF (2005) Antileshmanial activity and immune modulatory