Chemical Constituents from *Phlomis bracteosa*

Riaz Ullah[1], Jameel A. Khader[2], Naser M. AbdEIslam[2]
[1]Department of Chemistry, Sarhad University of Science & information Technology Peshawar, KPK, Pakistan
[2]Arriyadh Community College, King Saud University, Riyadh, Saudi Arabia
afridiriaz@yahoo.com

Abstract: Phytochemical study on the chemical constituents of the whole plant of *Phlomis bracteosa* (Labiatea) has resulted in the isolation of fourteen known compounds. These compounds were identified as benzoic acid (**1**), chrysin (**2**), henicosanoic acid methyl ester (**3**), thymine (**4**), hexadecyl ethers of glycerol (**5**), azukisaponin V (**6**), astragaloside VIII (**7**), quercetin (**8**), 5,4'-dihydroxy-3,6,7-trimethoxyflavone (**9**), *p*-hydroxybenzoic acid (**10**) , tenaxin II (**11**), 5,7,2'- trihydroxyflavone (**12**), lupeol (**13**) and taraxasterol (**14**). Their structures were confirmed on the basis of spectroscopic technique and by the comparisons with reported data.
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Keywords: *Phlomis bracteosa*; Labiatea; Natural Products.

Introduction

The genus *Phlomis* belongs to family labiatae comprising of approximately 100 species in the world. Some *Phlomis* species are used in Anatolian folk medicine as stimulants, tonics, analgesic, anti-inflammatory, anti mutagenic, anti-diarrhea tic, hemorrhoids immunosuppressive anti-nociceptive, ulcers, antifibriel, free radical scavenging, anti-malarial and anti-microbial effects. Different classes of natural product like glycosides, diterpenoids, phenylpropanoids, iridoids, phenylethanoids and flavonoids had been reported from genus *Phlomis* (Riaz U et al., 2013).

Materials and Methods:

The whole plant of *Phlomis bracteosa was* collected at the mountain of Swat, KPK, Pakistan, in 2011, and identified by Professor Mehbob ur Rehman (Plant taxonomist) at the Department of Botany Government College Matta Swat. The whole parts of *Phlomis bracteosa* were dried in dark, chopped and ground to coarse powder. The powdered plant (3 Kg) was initially extracted with methanol (7 days x 3) at room temp. The combined methanol extract was evaporated under reduced pressure leaving behind a greenish residue. After fractionating the ethyl acetate fraction obtained was subjected to column chromatography on silica gel using *n*-hexane, *n*-hexane-EtOAc, as the mobile phase and yielded some fractions. These fractions again subjected to column chromatography eluted with *n*-hexane-EtOAc which afforded compounds 1-14 in the polarity range of solvent system from 5 to 70 % of *n*-hexane-EtOAc.

Table 1. Compounds identified for the first time from *Phlomis bracteosa*

C. No	Name of Compounds	Main Fraction used	Amount	References
(1)	benzoic acid	Ethyl acetate	4 mg	(C. HE W et al 2010)
(2)	chrysin	Ethyl acetate	6mg	(E. Schievano etal 2010)
(3)	henicosanoic acid methyl ester	Ethyl acetate	4mg	(Y. Zhao etal 2010)
(4)	thymine	Ethyl acetate	5mg	(H. J. Yan etal 2010)
(5)	hexadecyl ethers of glycerol	Ethyl acetate	8mg	(Y. Q. Li et al 2010)
(6)	azukisaponin V	Ethyl acetate	4mg	((A. S. Gromova et al, 2001)
(7)	astragaloside VIII	Ethyl acetate	7mg	(A. S. Gromova et al, 2001)
(8)	quercetin	Ethyl acetate	11mg	(Y. H. Choi et al 2006)
(9)	5,4'-dihydroxy-3,6,7-trimethoxyflavone	Ethyl acetate	5mg	Voirin, 1983, Flores and Herran, 1958)
(10)	*p*-hydroxybenzoic acid	Ethyl acetate	3mg	(Y. H. Choi et al 2006)
(11)	tenaxin II	Ethyl acetate	7mg	(T. Tomimori et al ,1983)
(12)	5,7,2'- trihydroxyflavone	Ethyl acetate	9mg	(Y. Miyaichi et al, 2006)
(13)	lupeol	Ethyl acetate	7mg	(W. F. Reynolds et al, 1986)
(14)	taraxasterol	Ethyl acetate	7mg	(W. F. Reynolds et al, 1986)

Results and Discussion

Results obtained are given in **Table 1**. These 14 compounds identified as benzoic acid (**1**), chrysin (**2**), henicosanoic acid methyl ester (**3**), thymine (**4**), hexadecyl ethers of glycerol (**5**), azukisaponin V (**6**), astragaloside VIII (**7**) , quercetin (**8**), 5,4'-dihydroxy-3,6,7-trimethoxyflavone (**9**), *p*-hydroxybenzoic acid (**10**) , tenaxin II (**11**), 5,7,2'- trihydroxyflavone (**12**), lupeol (**13**) and taraxasterol (**14**). These 14 compounds were purified first time from *Phlomis bracteosa*. These compounds already identify from other species references given in table 1. This study is helpful for the researcher working in natural product isolation. These compounds can be isolated and need to study its pharmacological behavior.

Conclusion

This study is helpful for the researcher working in natural product isolation. These compounds can be isolated and need to study its pharmacological behavior.

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