

**PHENOLIC COMPOUNDS IN VARIOUS PARTS OF *DELONIX REGIA***Salunkhe M. B.^{1*}, Pise N. M.² and Gaikwad D. K.³¹Vivekanand College, Kolhapur.²K.B.P. College, Pandharpur.³Shivaji University, Botany Department, Kolhapur - 413303 (MS).Article Received on
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Corresponding Author*Salunkhe M. B.**Vivekanand College,
Kolhapur.**ABSTRACT**

The methanolic extracts of leaves, buds, flowers and pods of Gul Mohar [*Delonix regia* (Bojer ex Hook.) Raf.] were analysed for phenolic compounds. HPLC analysis of the methanolic extracts of leaf and petals revealed the presence of P-coumaric acid, Catechin hydrate, Kaemferol-3-glucoside, Kuromanin chloride, Rutin hydrate, Cynidin chloride, Quercetin 3 glucoside, Quercetin and Oenin chloride. The extracts of the young leaves and flowers might be used as nutraceutical constituents to improve the antioxidant potential.

KEYWORDS: *Delonix regia*, solvent extracts and phenolics.**INTRODUCTION**

Delonix is a genus of flowering plants of the family, Fabaceae. This genus contains trees that are native to Madagascar and East Africa. By far the best known species is the Royal Poinciana (*D. regia*). It has been used in traditional Indian medicine for the treatment of rheumatism, stomach disorders and its leaves are used in the treatment of bronchitis and pneumonia in infants [Thirugnanam and Mooligai, 2003 and Rani *et al.*, 2011]. The extract of *Delonix regia* is known to have medicinal properties (Joy, *et al.*, (2001). *Delonix regia* with an impressive range of medicinal and biological properties, has been used in the folk medicine systems of several civilizations like for the treatment of constipation, inflammation, arthritis, hemiplegia, leucorrhoea and rheumatism. [Ghulam, *et al.*, (2011) and Lawal, *et al.*, (2010)]. Hence an attempt has been made to evaluate phenolics of the various parts of *Delonix regia*.

MATERIAL AND METHOD

Sample Collection and Preparation of Extracts: Four different samples of leaves, buds, flowers and pods were collected from Gul Mohar [*Delonix regia*] grown in the University Campus. Ambient-dried samples of leaves, buds, flowers and pods were ground into a fine powder (80 mesh) in a grinding mill. For each of the dried parts (leaves, buds, flowers and pods) material (20 g) was separately extracted with methanol.

3.2. High Performance Liquid Chromatography (HPLC) Analysis: Identification of phenolic acids in the plant extract was performed on a Varian HPLC instrument using an ODS2 C18 reversed phase column. The HPLC assays were conducted using acidified acetonitrile (99.5%) as mobile phase in isocratic mode with a constant flow rate of 1 mL/ min and detection at 280 nm. Sample injection volume was 20 μ L. Phenolic compounds of each sample were identified by comparing their relative retention times with those of the standard mixture chromatogram. The concentration of an individual compound was calculated on the basis of peak area measurement and then converted to mg phenolics/100 g DW.

RESULT AND DISCUSSION

Table. 1: Phenolic compounds in different parts of *Delonix regia*.

Sr. No.	Compound Name	Leaves	Buds	Flowers	Pods
1.	P-coumaric acid	110.31	42.305	45.548	-
2.	catechin hydrate	100.78	26.527	46.18	-
3.	Oenin chloride	0.53	0.372	0.151	0.0417
4.	Procynidin C1	-	21.167	-	-
5.	Kaemferol	35.09	-	-	-
6.	Kaemferol-3-glucoside	199.1	12.008	23.329	-
7.	Kuromanin chloride	1.78	15.076	23.386	0.0655
8.	Rutin hydrate-	782.82	1156.282	1519.745	-
9.	Cynidin chloride	7.72	206.063	207.735	0.7382
10.	Quercetin 3 glucoside	165.28	205.105	537.185	-
11.	Quercetin	53.07	25.702	155.929	-

All values are in ppm

Methanolic extract of leaves, flowers, buds and bark of *Delonix regia* was analyzed by HPLC to quantify the individual phenolic acids (Table 1). The p-Coumaric acid content was higher in the leaves than flowers and buds. The Catechin content are highest in the leaves than flowers and buds. The Oenin chloride content maximum is noticed in Leaves than buds and flowers. The Procyanidins content only noticed in the Buds. The Kaempferol content was detected in only leaves. The Kaemferol-3-glucoside content was higher in the leaves than flowers and buds. The Kuromanin chloride content was higher in the flowers than buds and leaves. The Rutin content

was higher in the flowers than buds and leaves. The Cyanidin chloride content was higher in the flowers and buds. The Quercetin and Quercetin 3 glucoside content of flower was noticed in higher levels than buds and leaves.

Natural occurrence of p-Coumaric acid was reported from *Gnetum cleistostachyum* (Yao et al., 2005) and p-Coumaric acid in a wide variety of edible plants such as peanuts, navy beans, tomatoes, carrots, basil and garlic. It was noticed in wine and vinegar (Carrero et al., 1994) and also found in barley grain (Quinde (2006). p-Coumaric acid from pollen is a constituent of honey (Mao, et.al.(2013)). and also demonstrates in vitro anti-inflammatory activity (Kassim et al., 2010). p-Coumaric acid has antioxidant properties and is believed to reduce the risk of stomach cancer (Ferguson *et al.*, 2005) by reducing the formation of carcinogenic nitrosamines (Kikugawa *et al.*, 1983).

CONCLUSION

Delonix regia examined during the present investigations showed different phenolics i.e. p-coumaric acid, Catechin hydrate, Kaemferol-3-glucoside, Kuromanin chloride, Rutin hydrate, Cynidin chloride, Quercetin 3 glucoside, Quercetin and Oenin chloride detected. These phenolics exhibit anti-cancer effects, antibacterial properties and antioxidant potential. Thus the flower and leaves of *Delonix regia* might be utilised in formulations of various composite herbal products and nutraceutical products to elevate the antioxidant potential.

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