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**Abstract**

Medicinal plants play an important role in human health. The three rhizomes viz *Raphanus sativus* L, *Daucos carota* L and *Beta vulgaris* L were selected for the study. All the rhizomes have been serving as a Salad in India.

The present study was undertaken to investigate the secondary metabolites present in water extract of *Raphanus sativus* L, *Daucos carota* L and *Beta vulgaris* L. The water extract of rhizomes of *Raphanus sativus* contains highest number of phytochemicals where as *Daucus carota* contain least. Cardial glycosides and Diterpene were present in all extract indicating useful on gastrointestinal drugs, and pain relievers.

**Keywords**: *Raphanus sativus* L, *Daucos carota* L and *Beta vulgaris* L, Qualitative Phytochemical analysis.

1. **Introduction**

According to World Health Organization medicinal plants would be the best source to obtain a variety of drugs. About 80% of individuals from developed countries used traditional medicine, which has compounds derived from medicinal plants (Aggarwal BB et.al 2007). Herbal products are suitable for treating a wide range of infections and diseases (Chattopadhyay et.al 2004, Godghate et.al 2013).

*Raphanus sativus* belongs to family Brassicaceae. It has been used as a medicinal plant from a long time. It has laxative effects on intestine and acts as an appetizer used for curing liver dysfunction and poor digestion. *Raphanus sativus* seeds were found to contain alkaloid like coumarin, saponin, flavonoids and anthocyanin (Sana, et.al,2001). It also has antimicrobial activity, antimitogenic, anticarcinogenic and antiatherosclerosis activity (Suh et al., 2006).

*Daucus carota* Linn, commonly known as carrot, is a vegetable which has beta-carotene content. Roots of *Daucus carota* Linn. have been used for treatments of inflammation and some chronic diseases. It is regarded as a healthy food item because of its high vitamin and fiber content (Nilsson, 1987; Chen et.al , 1998 and Negi et.al 2000).

*Beta vulgaris* Linn. is an important medicinal plant of family Chenopodiaceae. It is commonly known as Beet root or garden beet. The root is used in Indian traditional systems of medicine specifically for the treatment of fertility, hypertension, cancer and urinary tract disorders (Kirtikar, et.al, 2005, Khare, et.al, 2007).

On the basis of all above medicinal uses these plants were considered for the present study.

2. **Material and Methods**

2.1 Collection and Authentification:

Fresh rhizomes of *Raphanus sativus* L, *Daucos carota* L and *Beta vulgaris* L were purchased from Gadhinglaj area of Kolhapur district of Maharashtra state. Authentification was done at Department of Botany, Dr. Ghali College, Gadhinglaj, District Kolhapur of Maharashtra State.

2.2 Preparation of Extracts:

200 ml of juice of rhizomes of *Raphanus sativus* L, *Daucos carota* L and *Beta vulgaris* L were mixed with 300 ml of distilled water and heat on water bath for 1/3rd of original concentration. Then it was used for further analysis.
2.3 Qualitative Phytochemical Analysis

All the extracts of plants were individually analyzed for the various classes of phytochemicals (Table 1) using standard methods (Seema et.al 2011, S.De. et.al 2010, Sunil et.al 2012, Ashokan et.al 2012, Harborne 1973 & Sofowora 1993, Ashvin et.al 2014 and Godghate et.al 2015).

Beta cyanine:

1 ml of 2N NaOH was added to 2 ml of plant extract and heated for 5 min at 100°C. Formation of yellow colour indicated the presence of Beta cyanine.

Coumarin:

3 ml of 10% NH4OH was added to 2 ml of aqueous extract. Formation of yellow colour indicates coumarin.

Acid: Plant extract 1 ml was treated with Sodium Bicarbonate solution. Formation of effervescence indicates presence of acids.

Phlobatannins:

Deposition of red ppt when aqueous extract of each plant sample is boiled with 1% aqueous HCl was taken as evidence for presence of phlobatannins.

Leucoanthocyanin:

5 ml of isoamyl alcohol added to 5 ml of aqueous, upper layer appear red in colour indicates the presence of Leucoanthocyanin.

Chalcones:

2 ml of NH4OH was added to 0.5 gm ethanol extract. Appearance of red colour showed presence of chalcones.

Cardiac Glycosides:

Plant extract treated with 2 ml glacial acetic acid containing a drop of FeCl3. A brown colour ring indicates the presence of positive test.

Phytosterol:

Extract was treated with chloroform and filtered. The filtrate was treated with few drops of concentrated H2SO4 and shakes, allow standing, appearance of golden red indicates the positive test.

Diterpene:

Extract where dissolved in water and treated with 10 drops of copper acetate solution. Formation of emerald green colour indicates presence of diterpene.

Emodins:

2 ml of NH4OH and 3 ml of benzene was added to extract appearance of red colour indicates presence of emodins.

3. Table 1: Phytochemical Analysis of water extracts of rhizomes of Raphanus sativus L., Daucus carota L. & beta vulgaris L.


3. Conclusion:

Qualitative phytochemical analysis of water extract of rhizomes of Daucus carrot indicates the presence of Cardial glycosides & Diterpene whereas beta cyanine, Coumarin, acid, Phlobatannins, Leucoanthocyanin, Chalcones, Phytosterol, & emodins were absent. Similar investigation was carried out by Mehmet et.al 2007.

The phytochemical test for Beta vulgaris L. (Sugar beet) rhizome (Plant material) we observed that Coumarin, Leucoanthocyanin, cardiac glycosides, Phytosterol, Diterpene & emodins were present whereas betacyanine, Coumarin, acid, Phlobatannins, Leucoanthocyanin & Chalcones were absent. Jain et.al 2012 also reported phytochemical study of Beta vulgaris L.

Raphanus sativus L. (Radish) contains cardiac glycosides, diterpene & Phytosterol qualitatively. Similar study has been reported by Safia et.al, 2013.
4. References