

ESTIMATION OF ANTIOXIDANT ACTIVITY OF HERBAL MEDICINES PUNARNAVADI, KANCHANAR ARK AND GOMUTRASAV

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ABSTRACT

The source of naturally occurring antioxidant materials we got from the parts of the plants, fruits, grains etc. Herbal medicines are play a vital role in curing various diseases because they contain compounds having antioxidant property. Punarnava helps maintain efficient kidney and urinary functions with its diuretic, laxative, stomachic, diaphoretic, anthelmintic antispasmodic and anti-inflammatory action. According to Ayurveda, Punarnava is bitter, cooling, astringent to bowels, like that kanchanar also use in the treatment of a wide range of diseases. It is used traditionally in dysentery, diarrhea, hemorrhoids, piles, edema, laxative, anti-helmintic, astringent, anti-leprotic, wound healing, anti-goitrogenic, anti-tumor, antidote for snake poisoning, dyspepsia and carminative diseases. The antioxidant activity of herbal medicines Punarnavadi, Kachanar ark and the Gomutrasav were undertaken and determined the value of O.D. by using U.V. spectrophotometer. From this investigation it is found that the all Punarnavadi, kanchanar arkas and gomutrasav have good to moderate antioxidant properties.

Keywords: Antioxidant property, spectrophotometric study, optical density, absorption coefficient, etc.

Introduction

Ayurveda is an ancient system of life (Ayur) knowledge (veda) arising in India thousands of years ago. Ayurveda theory evolved from understanding creation. It is a system of medicine with historical roots in the Indian sub-continent globalized and modernized practises derived from ayurveda traditions are a type of completely or alternative medicine. In countries beyond India ayurveda therapies and practices have been integrated in general wellness applications and in some cases in medical use.

Plant based treatment may derived from roots leaves, fruits, bark, and seeds. Such as cordmom and cinamom. In the 19th century Wilium Dymock and co-authers summarized hundreds of plants derived medicines along with the uses, microscopic structure chemical composition, technology stories and relation to commons in British in India. Animal products used in ayurveda include milk, bones and gallstones in addition, fats are prescribed both consumption and for external use. Consumption of minerals including sulphur, arsenic, lead, copper, sulphate and gold are also prescribed.

Punarnavadi arka contains following ingredients

Sr. No.	Ingredients	Net content
1	Upalsari or Anantmul (Hemidesmus Indicus, Indian Sarsaparilla)	0.2 gm
2	Punarnava (Boerhavia diffusa)	0.4gm
3	Neem patra (Azadirachta indica; Indian lilac)	0.1 gm
4	Kankol (Piper Cubeba)	0.004 gm
5	Gomutra Ark (Cow's urine extract)	2.4 ml
6	Gokharu (Tribulus Terrestris, Land Caltrops, PunctureVine)	0.2gm
7	Giloy (Tinospora Cordifoliya)	0.1 gm
8	Durva (Cynodon dactylon)	0.1 gm
9	Daruhaladi (Berberis aristata)	0.1 gm

Punarnava (bohrevia diffusa) in India where it has a long history of use by indigenous and tribal people, and in Ayurvedic or natural/herbal medicine in India. There, the roots are employed for many purposes including liver, gallbladder, and kidney, renal and urinary disorders. Bitter, stomachic, laxative, diuretic, expectorant, rejuvenative, diaphoretic, emetic Root-purgative, anthelmintic, febrifuge, White-laxative, diaphoretic. Similar to its name it rejuvenates the whole body i.e. with routine use of Punarnava a fellow become young again – full of vigor and vitality. Punarnava corrects the digestive system, alleviates fluid retention and very useful in managing heart diseases.

Punarnava also benefits in anemia, hernia and respiratory distress. Punarnava can also be taken in liver problems and managing lipids and cholesterol in healthy limits.

a. Kanchnar ark contains following ingredients

b.

Sr. No.	Ingredients	Content
1	Varun chal (Crateva nurvala)	0.2 gm
2	Rataroyada (Tecomella undulata, Roheda, Honey tree, Desert Teak, Marwar Teak, Rohida, Raktroda, Raktarohida)	0.2gm
3	Punarnava (Boerhavia diffusa, red spiderling, Spreading hogweed, tarvine)	0.29 gm
4	Makoya (Solanum nigrum, black nightshade, black berry, Laghukavali)	0.2 gm
5	Kanchanar (Bauhinia Variegata, orchid tree, Camel's foot tree, Mountain – ebony)	0.2 gm
6	Gomutra (Cow's urine extract)	23.2 ml
7	Apamarg (Achyranthes aspera, Chaff – flower)	0.2 gm
8	Anantmul (Upalsari, Hemidesmus Indicus, Indian sarasaparilla)	0.2 gm

c. It is very popular and beautiful tree it is grow as ornamental tree in the gardens along the road sides. The leaves of trees are shaped like a camel's hoof print it is bears beautiful aromatic pink white or yellow flowers spring season. BahuhiniaVarigata a medicinal tree native to tropical Indian subcontinent is well protective in Indian indigenous health science, kanchnar ark used in disorder like gandamala, arbundaashtila and kapha-pitta dosha disorders.

Gomutrasav contains following ingredients

- Chitrakamool (Plumbago Zeylanica)
- Sonth (Sunth, Ginger, Zingiber officinate)
- Pimpli (Long pepper, Piper longum)
- Mire (black pepper)
- Gomutra (Indian cow's urine extract)
- Madhu (Honey)
- Dhayati Pushpa (woodfordia fruticosa, Red bell bus

- Gud (Jaggery)
- Ghrut (Ghee from Bharatiya Cow's milk)

Is an Ayurvedic formulation in which main ingredients is gomutra or cow urine the preparation involve fermentation of gomutra. In ayurveda the use of this medicine is especially mentioned of treatment of shvitra. Shvitra is ayurvedic term for disorder in which white deep pigmented patch appear on various parts of body. This medicine effective in jaundice, anaemia, disease of kidney, liver heart and urinary system, cancer, asthma, cough, worm infection and skin problem.

Materials and Methods

The sample drugs i.e. Kanchanr, Punarnavadi arka and Gomutrasave are collected from Adarsh Goseva kendra (Prakalpa)Akola.

Study of Qualitative Antioxidant Activity DPPH

After the making the dilute solutions of these arks and asav, placed one drop of solutions on TLC plate and tested for antioxidant activity using DPPH reagent. The diluted solutions of these arkas and asavas showed bleaching of purple colour of DPPH indicating presence of antioxidants

Study of Antioxidant Activity of Kanchanar, Punarnavadi Ark and Gomutrasav

The antioxidant activity of Kanchanar, Punarnavadi Ark and Gomutrasav has been assessed on the basis of the radical scavenging effect of the stable 1, 1-diphenyl-2-picrylhydrazyl (DPPH). The diluted working solutions of Kanchanar, Punarnavadi Ark and Gomutrasav were prepared in water. A solution of 0.002% of DPPH was prepared in ethyl alcohol and 1 ml of this solution was mixed with 1 ml of solution of Kanchanar, Punarnavadi Ark and Gomutrasav separately. This solutions was kept in dark for 30 min and optical density was measured at 517 nm using UV visible spectrophotometer. A mixture of solvent (pure 1 ml) and DPPH solution (0.002%, 1 ml) was used as blank. The optical density was recorded and percent inhibition was calculated using the formula given below

$$\text{Percent inhibition of DPPH (\% AA)} = \frac{A-B}{A} \times 100$$

Where, A= Blank O.D. of DPPH

B = O.D. of sample solution

From this formula we can calculate IC_{50} value of each sample.

$$IC_{50} = \text{Max} (\%AA) - 50 \% (\text{Max} - \text{Min} \%AA)$$

Result and Discussion

Ten different solutions of each extract were prepared having 0.01mg/ml, 0.02mg/ml...to 0.10 mg/ml of each of this solution was mixed with 1 ml of 0.002mg/ml DPPH solution and resulting solution was used as sample. The optical density of these samples was recorded by UV Visible spectrophotometer and the results obtained are reported in the following

tables and. IC_{50} values have been calculated for every solution

Table No. 1 O.D. of kanchanar Ark.

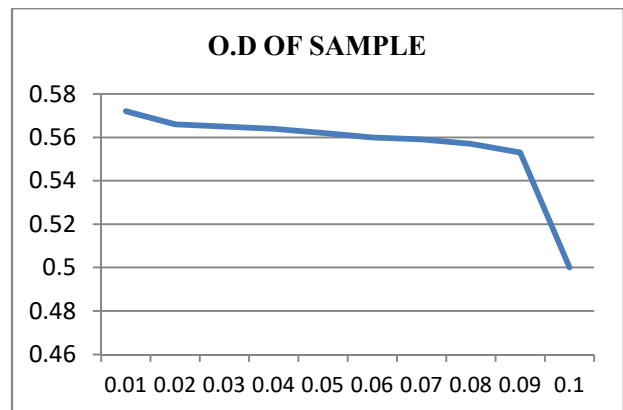
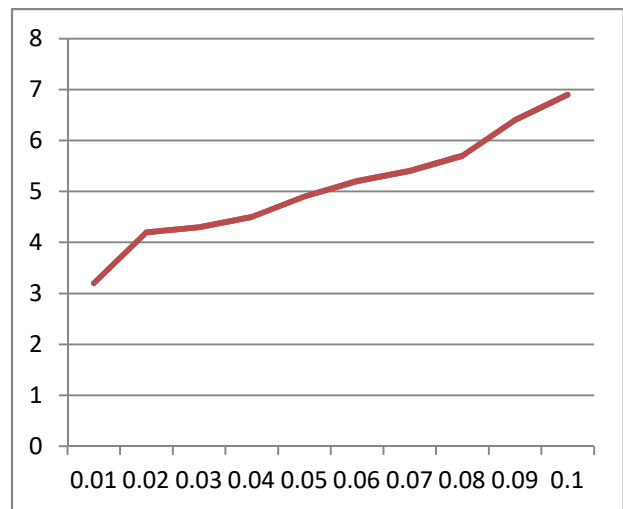
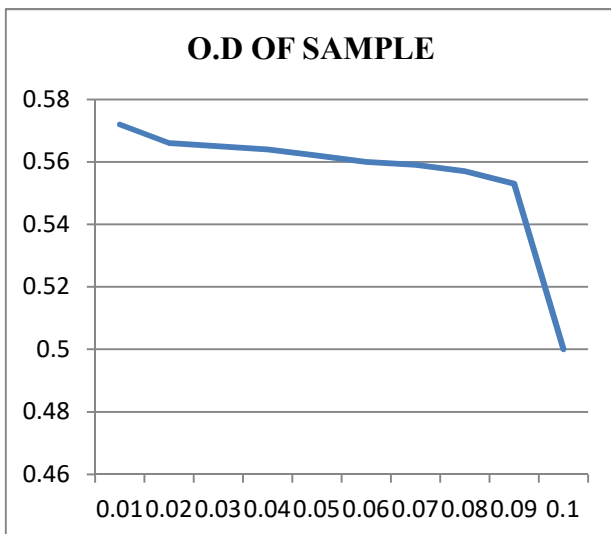


Table No. 1 O.D. of kanchanar Ark.

Concentration mg/ml	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10
O.D of sample	0.572	0.566	0.565	0.564	0.562	0.560	0.559	0.557	0.553	0.50
% AA	3.2	4.2	4.3	4.5	4.9	5.2	5.4	5.7	6.4	6.9

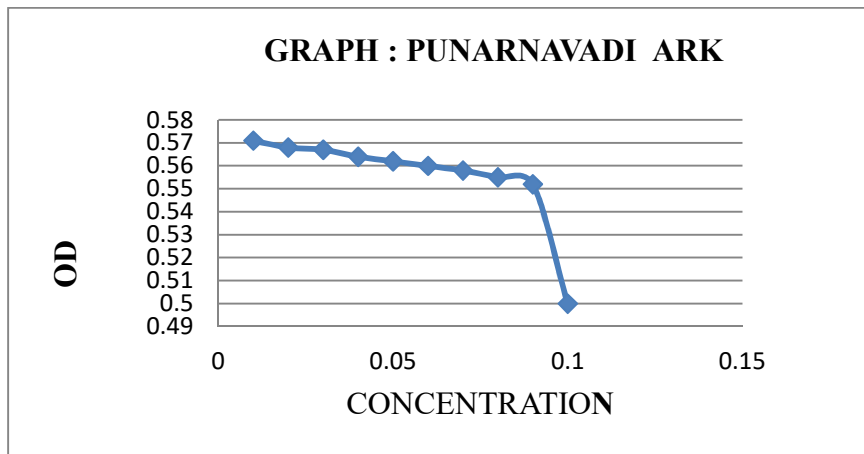


IC_{50} value of kanchanar ark- 5.05

**Table No.2 Optical density and percent antioxidant activity of Punarnavadi Ark
O.D. of Blank 46.27**

Concentration mg/ml	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
O.D of sample	0.571	0.568	0.567	0.564	0.562	0.560	0.558	0.555	0.552
% AA	3.3	3.8	4.0	4.5	4.9	5.2	5.5	6.0	6.5

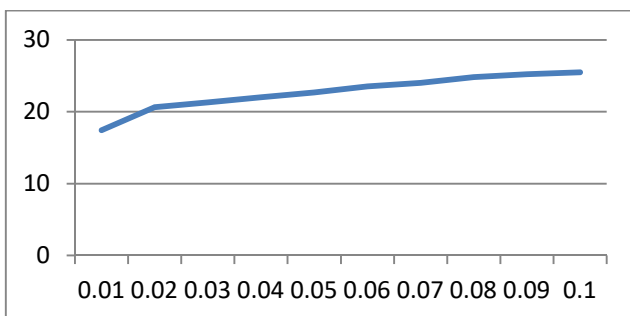
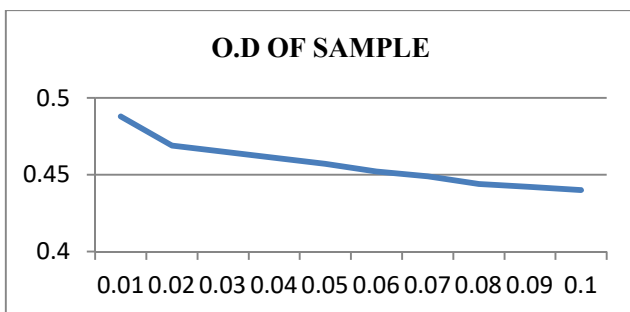
Graph 1.1 Concentration Vs OD



Concentration against %AA
 IC₅₀ value = 5.1mg/ml
 Concentration vs % AA IC₅₀ value = 21.45mg/ml

Table No. 3 Optical density and percent antioxidant activity of Gomutrasav O.D. of Blank 48.06

Concentration mg/ml	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	1.0
O.D of sample	0.488	0.469	0.465	0.461	0.457	0.452	0.449	0.444	0.442	0.440
% AA	17.4	20.6	21.3	21.9	22.6	23.5	24.0	24.8	25.2	25.5



IC₅₀ value Of Gomutrasav is 21.46

Conclusion

Accurately decreases in the O.D. values of the tested samples solutions of Punarnavadi Arka, Kanchnar Arka and Gomutrasav were observed showed antioxidant activity of the solutions. IC₅₀ values for Punarnavadi, Kanchnar ark and Gomutrasav was found to be 5.05 mg/ml, 5.1 mg/ml and 21.45 mg/ml respectively.

Sr. No.	Name of the Arka	IC ₅₀
1.	Kanchnar	5.1
2.	Punarnavadi,	5.05
3.	Gomutrasav	21.45

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