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IN-VITRO ANTIOXIDANT STUDY BY DPPH METHOD OF PLANTS ALTERNANTHERA FICOIDEA AND POLIANTHESIS TUBEROSA

Rajni Singh , Research Scholar, School of Pharmacy, Glocal University Saharanpur (U.P)

Dr. Chhater Singh, Research Supervisor, School of Pharmacy, Glocal University Saharanpur (U.P)

ABSTRACT

The Ayurveda, one of the oldest traditional systems of medicines, is based on utilities of medicinal plants. The spine of Ayurveda and other traditional system of medicines is medicinal plants. Human society depends on pants and plants product for their sustainable development and maintenance of good health. Medicinal plants are used by humans for both the treatment and prevention of various diseases from ancient time just because they contain medicinal property.Throughout the whole study we find the result more satisfying and it is also suggestive for further investigation. Medicinal plants are used as medicine for the treatment and management of various diseases from ancient time in all over the world. Medicinal plants are used as fresh, in the form of dried crude powder or in the form of extract. These medicinal plants are rich with multiple phytoconstituents but only rich with few as major phytoconstituents. Mostly by considering the major phytoconstituents adhere to the plants, they are used as medicinal against for the management and treatment of various physiological disorders. Commercially so many synthetic pharmaceutical formulation are available for the treatment of various physiological disorders, but in addition to their therapeutic potential, they have many harmful side effects as compare to the plant originated drug, which have no or less side effect.

INTRODUCTION

The use of medicinal plants as therapy is increasing day by day that leads to exploration of traditional system of medicine in worldwide.The traditional system of medicines has a hopeful future as the world rich with millions of plants, and most of them have some medicinal values, some are investigated and some are yet to be studied. Further researches are also going on worldwide to explore more medicinal plants having medicinal values for the benefit of human beings. Two medicinal plants, Alternanthera ficoidea and Polianthesis tuberosa were selected for the research purpose.The Ayurveda, one of the oldest traditional systems of medicines, is based on utilities of medicinal plants. The spine of Ayurveda and other traditional system of medicines is medicinal plants. Human society depends on pants and plants product for their sustainable development and maintenance of good health. Medicinal plants are used by humans for both the treatment and prevention of various diseases from ancient time

just because they contain medicinal property. On the basis of survey, the present study was taken to investigate various parameters to standardized the both plant parts and it hydroalcoholic extract and to evaluate the activity against diabetes and diabetes induced depression of hydroalcoholic extract of *Alternanthera ficoidea* and *Polianthesis tuberosa.* The medicinal plants or its specific parts that contain various phytoconstituents are helpful in the treatment as well as management of various chronic diseases (Saxena et al., 2013,). These two plants have a variety of therapeutic potentiality and both plants are used by local people in Indian subcontinent as traditional medicines.From the literature survey, it was observed that both Alternanthera ficoidea and Polianthesis tuberosa traditionally used for the treatment of diabetes and in central nervous system (CNS) disorders but there is no research article available regarding study about diabetes associated co-morbidities (specifically depression).

METHODOLOGY

DPPH free radical scavenging assay were used for determining antioxidant activity of HAF/HLO as mentioned by Nithianitham et al and Zuraini et al with some modifications. 10mg/mL stock solution of HAF/HLO was prepared. Different dilution of HAF /HLO (20 µLto 100 µL) was taken and was diluted up to 1 mL with methanol. Then 1mL of each dilution was added with 2 mL of 0.004% (w/v) DPPH solution. This mixture was vortexed, kept inside the incubator for 30 minutes in dark, and spectrophotometric absorbance was measured at 517 nm. 80% (v/v) methanol was used as blank solution. Ascorbic acid was used as the standard compound for comparative study. All measurements were done in triplicate. Following formula was used to calculate DPPH free radical scavenging activity:

Scavenging activity (%) =

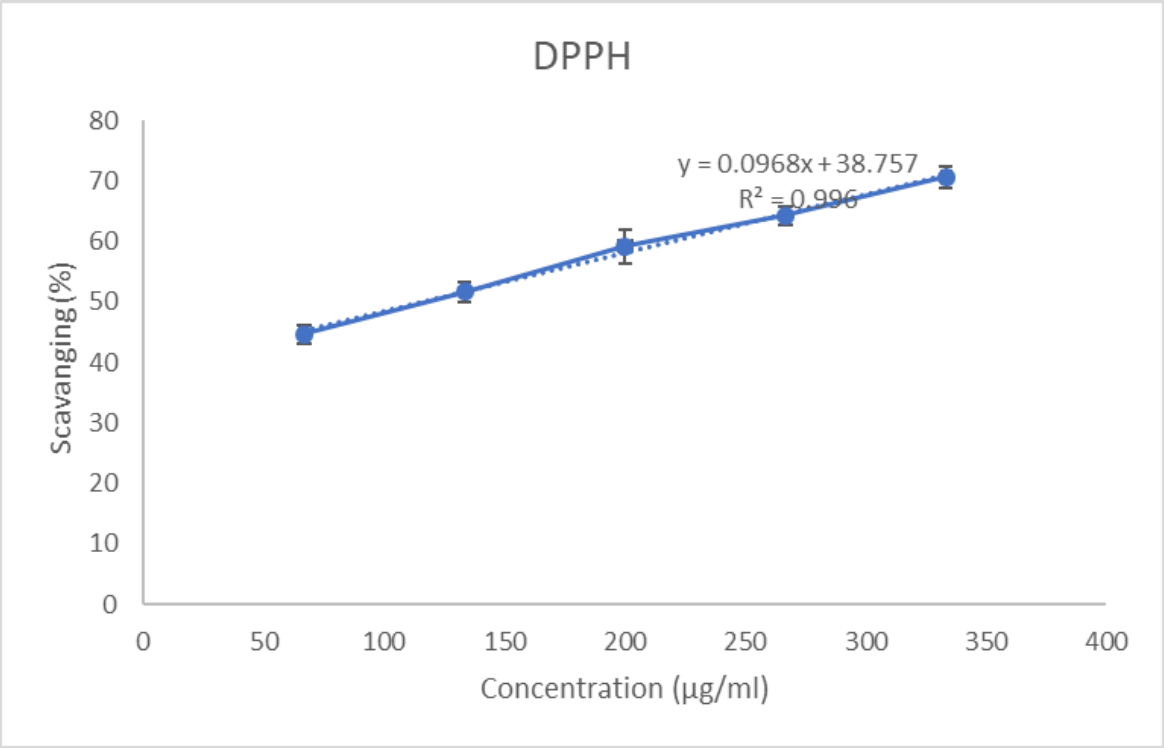
Here, control =0.004 % (w/v) DPPH solution; sample = HAF/HLO

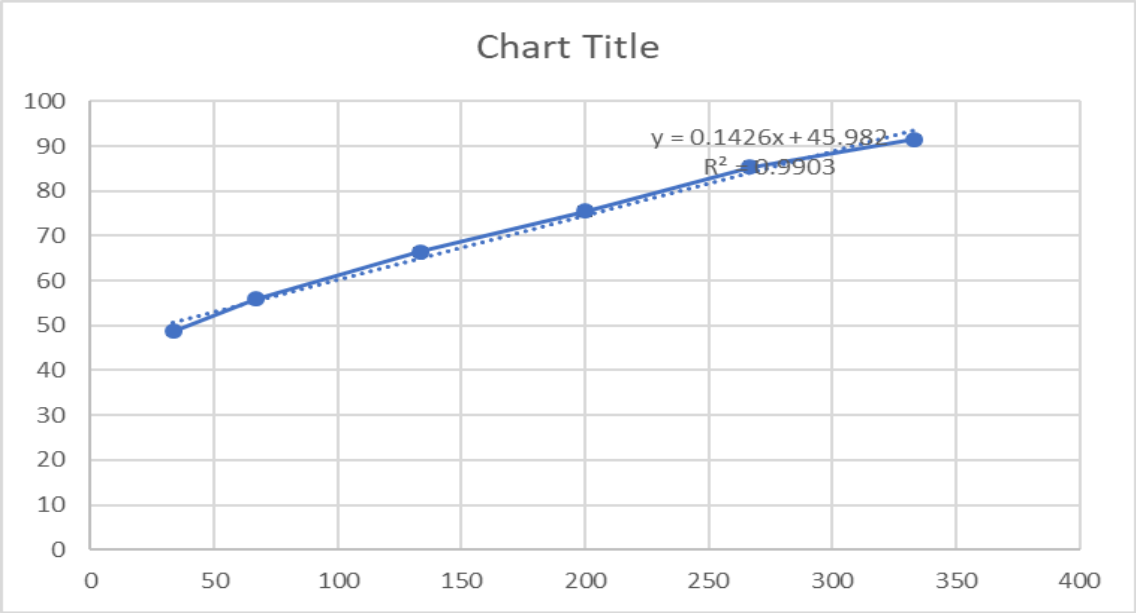
RESULT

In-vitro Antioxidant study of hydroalcoholic extract of whole plant of *Alternanthera ficoidea* and *Polianthes tuberosa* by DPPH method

The observed values of HAF's scavenging activity at different concentrations were depicted as the plotted graph. IC50value of HAF and ascorbic acid were calculated as 115.14 µg/mL and 29.86 µg/mL respectively.

Fig 8 Representation of Graphical DPPH activity of *Alternanthera ficoidea* and *Polianthes tuberosa*





Conclusion

This study confirmed that the extract contains major bioactive components like steroids, tannins, phenols and flavonoids. The quantitative estimation of these phytochemicals was made to know the therapeutic potential of the crude extract and its fractionated extracts**.** Taken hydroalcoholic extract of AF and PO, the current findings suggest

that both dose therapies could be a competent, economical medicinal agent for the treatment and management of comorbid depression along with hyperglycemia in future. Further, this study showed that both the extract of AF and PO exhibited protection against disease.In the above work we did the standard procedure to find the different physiochemical parameter of the extracted crude drug like its ash value and also, we did the foaming index and swelling index of the extracted drug. We also measure the qualitative analysis of the extracted sample. Further we seen the release study of the both the samples and concluded that the drug release very fast and more than 80 percent within six hours. We recommended that sample drug were further analyzed for antidiabetic activity. phytochemical standardization of a crude extract is essential to predict the biological activity of the plant material.

REFERENCES

Andreeva,T. F., Strogonova,L.E., Protasova,N.N., Murashov,I.N., Yustepanenko,S. and Maevskaya,S.N.(1980). Photosynthesis and growth of maize (Zea mays) and Sunflower (Helianthus annus) plants. Fizol Rast (MOSC).27(1): 105-112.

Ansari,R, (1972). Effect of salinity on some Brassica oil seed varieties. Pak.J.Bot.. 4(l):55-63

Apel.P. and H.Ohle (1979). C02-Kompensations punkt und Blatta-natomie bei Arten der Gattung Moricanda DC. (Cruciferae) Biochero.Physiol.Pflanzen : 174 : 68-75.

Appiano, A., G . Dagostino and S. Pennazio (1979), Development of dimorphic chlcroplasts in a 4 carbon dicotyledon, Gomphrina olobosa. in relation to plastochron age. #» J.Submicrosccvtol., 11(4) : 479-488.

Bernstein,L. (1964). Effects of salinity on mineral composi-tion and growth of plants. Plant Anal.Fert.Probl., 4 : 25-45.

Bernstein,L. (1967). Quantitative assessment of irrigation water quality pp.51-65. Am Soc Mater Spec Tech Publ. 416 : 1-210.

Bernstein,L. (1970). Calcium and salt tolerance of plants. Science. 167 : 1387.

Bernstein,L. (1975). Effect of salinity and sodicity on plant growth. Ann.Rev.Phytopathology.13:295-312.

Bernstein,L. and H.E.Hayward (1958). Physiology of salt tolerance. Ann.Rev.Plant Physiol. 24-48.

Chatterton,N.J., Goodin,J.R. and C.Danean (1971). Nitrogen metabolism of Atriolex polvcarpa as affected by substrate nitrogen and NaCl salinity. Aaron.J..63(2); 271-274.

Chatterton,N.J. and C.M.Mckell (1969). Atriplex polvcarpa I. Germination and growth as affected by sodium chloride in water cultures. AgroruJ. ,61(3):448-450.

Chavan,P.D. (1980). Physiological studies in plants (physiological studies in Eleusine coracana Gaertin.) Ph.D. Thesis submitted to the Shivaji University Kolhapur (India).

Chavan,P.D.and B.A.Karadge (1980). Influence of salinity on minearl nuttition of peanut (Arachis hypoaeai L.) Plant and Soil. 54 : 5-13.

Chen,T.M., R.H.Brown and C.C.Black (1971). Photosynthetic 14C0_2 fixation products and activities of enzymes related to photosynthesis in bermuda grass and other plants. Plant Phvsiol..47:199-203.

Edwards,G.E. and D.A.Walker (1980). C3, C4 and CAM : Some aspects of photosynthetic carbon assimilation. Packard Publ.Ltd., Chichester, Sussex.

Ehler,W. and L.ernstein (1958). Effect of temperature, mineral nutrition, and salinity on the growth and composition rice. Bot.Gaz..120 : 67-74.

El-Gamassy,A.M. , A.A.Abd El-Rahman, M.Hassie and M.S.Mandour (1974). Vegetative patterns and water economy of Agave sisalana in saline soils. Z.Acker.Pflanzenbau..139(3): 165-171.

Ferry,J.E. and H.S.Ward (1959). Fundamentals of plant physiology MacMillan and Company. New York, Fischer,R.A. and N.C.Turner (1978). Plant productivity in the arid and semiarid zones. Annu.Rev.Plant Phvsiol..29:277-317

Flowers,T.J. (1972). The effect of sodium chloride on enzyme activities from four halophyte species of chenopodiaceae. Phytochemistry. 11(6) : 1881-1886.

Forrester,N.L., G.Krotkov and C.D.Nelson (1966). Effect of oxygen on photosynthesis, photorespiration and respiration in detached leaves II. Corn and other monocotyledons. Plant Phvsiol.. 41:428-431.

Francois,L.E. and R.A.Clark (1979). Accumulation of Na and Cl in leaves of sprinkler-irrigated grapes. J.Am.Soc.Hortic Sci., 104(1) : 11-13.

Frederick,S.E., E.H.Newcomb (1971). Ultrastructure and distribution of microbodies in leaves of grasses with and without COj-photorespiration. PIanta. 96:152-174.

Joshi,G.V. and M.D.Karekar (1972). 4C0_2 fixation pathways in marine plants. Symposium on photosyphysical and photochemical processes in Biological systems. IRRI, New Delhi. (Proceedings and publication).

Joshi,G.V. and Karekar,M.D,, (1973). Pathway of $14C0_2$ fixation in marine algae. Proc.Ind.Sci.Acad.B..39:489-493.

Joshi,G.V., Karekar,M.D., Gowda,C.A. and L.J.Bhosale (1974). Photosynthetic carbon metabolism and carboxylating enzymes in Algae and mangroves under saline conditions. Photosynthetica 8(1) :51-52.

chloride,Sodium and proline under low and high salinity. Ann Bot..43(6):701-708.

Tailakov,N. and G.Sapargel* Dyev (1976). Effect of salinization on photosynthetic intensity of cultivated plants. Izv.Akad.Nauk.Turkm.SSR.SEE Biol.Nauk.2:39-44.

Takeda,T., Osamu,U., Waichi,A. (1980). The occurrence of 4 carbon pathway species in the genus Rhvnchospora and its significance in Kranz anatomy of the Cyperaceae. Bot.¥saa. (Tokyo).93:55-66.

Udovenko,G.V. , L.A.Semushina and N.G. Petrochenko (1971). Character and possible explanation of the changed photosynthetizing activity of plants during salinization. Fiziol.Rast.,18(4):708-715.

Udovenko,G.V., L.A.Semushina, V.S.Saakov,V.T.Golkin,V.A. Koshkin and T,A.Kunchenko (1974). Effect of salinization on the state and activity of photosynthesizing apparatus of plants. Fiziol.Rast..21(3):623-629.

Udovenko,G.V., V.N.Sinel'nikova and G.V.Khazova (1971a). Effect of substrate salinity on nitrogen metabolism of plants having different salt tolerance. Aoro khimiva. 3:23-31.

U.S.D.A. Salinity Laboratory Staff (1954). Diagnosis and improvement of saline and alkali soils. Agriculture Handbook No.60 129 and 134.