

QUALITATIVE PHYTOCHEMICAL ANALYSIS OF SOLANUM
XANTHOCARPUM (L.) FAMILY; SOLANACEAE

Manmohan S. Bhaisare*

Department of Botany Late. Nirdhan Patil Waghaye Science Collage Lakhani.

Article Received on
19 Jan. 2021.Revised on 09 Feb. 2021.
Accepted on 01 March 2021

10.20959/wjpps20214-18620

*Corresponding Author

Dr. Manmohan S. Bhaisare

Department of Botany Late.

Nirdhan Patil Waghaye

Science Collage Lakhani.

ABSTRACT

Solanum xanthocarpum, Schrad and Wendle, is belong to family Solanaceae. In India Vidharbha it is commonly known as Jangly berry. The tribal people used the plant fruit for its invariable medicinal purposes in traditional system. In India plant grow mainly at dry and waste place as weed along roadside. Phytochemical analysis performs after the fruit of Solanum xanthocarpum obtained from road and edge of lake side between March to May 2020. To analiseze bioactive component from 10g of fruit sample powder in ethanol and water extract. The screening revealed the presence of Carbohydrates,

Alkaloids, Polyphenol, Steroids and Saponnin in high and moderate concentration. This result compared with literature value which depicted usefulness in the treatment of some common disease.

KEYWORD: Solanum xanthocarpum, Janglyberri, Phytochemical, bioactive.

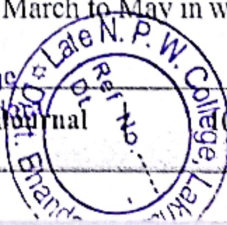
INTRODUCTION

The genus Solanum is the largest group of Angiosperm plant found Umbrella canopy, with family Solanaceae. The genus contain more than 2000 species.^[4]

The branches of plant herbaceous Stem woody zigzag and branches often with curved prickles. Young parts with cyme inflorescence. Leaves with stellate tomentose. Leaves ovate, oblong, serrate or obtusely lobed. Flower bluish purple in extraxillary cyme. Fruit is yellow or white berries, globoes smooth about an inch with green veins surrounded by calyx. Seed are glabrous.^[6] Plant is found throughout India usually grow as a weed in moist habitat in different kind of soils, including dry, stony, shallow or deep soils and can be cultivated in tropical and subtropical agroclimetic region by sowing the seeds during March to May in well

Off. Principal

Late. N.P.W. College



fertilized.^[7] Plant is also one of the component of several traditional herbal formulation, Dashmularista and Kanaka Sava. In vitro and vivo experimental studies of *Solanum xanthocarpum* (L.) provided evidence for traditional.^[6,8] Mukundara tribal of Rajasthan use paste of the root in hernia. Leaves are applied locally to treated muscular pain and juice mixed with black pepper is used in rheumatism. The paste applied on painful joint in arthritis, reduced pain and swelling.^[5] Root of the plant decoction given with long pepper and honey, in cough and catarrh and with rock salt and asafetida in spasmodic cough. The dried fruit are smoked in the form of cigarette and smoke held up in the mouth cure dental infection. The fumigation of plant is known to be useful in treating piles. *Solanum xanthocarpum* plant useful for the treatment of some common disease. so the plant should be harvested for its potential value.^[7]

MATERIAL AND METHODS

The fresh fruit of *Solanum xanthocarpum* (L.) used for this analysis, were collected behind the edge of lake of Lakhani Tahasil of Bhandara District, between March to May 2020. The sample were carried in Department of Botany, Late. N.P.W. College Lakhani. The fruit were shade dried for one day, washed with distilled water; oven dried 80° C for two hours to obtained a constant weight. The sample were then finely ground and stored in plastic container at ambient temperature. Five gram of each sample was placed in to two conical flask containing 100ml water and ethanol respectively. The mixtures were covered and allow to standing for 03 hours, after which they were filtered. The precipitation were covered and labeled. Standard qualitative methods were used for the analysis.^[1,2,3] The procedures are as follow.

Alkaloids: one centiliter of 1%HCL was added to 3cm³ of each extract in test tube. Each extract was heated with few drop of Mayer's reagent. A creamy white precipitate was observed indicating presence of alkaloids.

Steroids: one centiliter of concentrated H₂SO₄ was added to 1cm³ of each extract. A red color solution mixed with water indicating the presence of steriols was observed.

Saponin: two centiliter of each extract in a test tube was vigorously shaken for two minute. Frothing presence of saponin was noted.

Off. Principal
Late. N.P.W. College
Lakhani, Distt. Bhandara



Poly phenol: two centiliter of the extract was heated with 100cm^3 of ethyl acetate in a water bath and allowed to cool. The layers were allowed to separate and the colour of the NH_3 layer was noticed (red coloration formed).

Carbohydrates: five centiliter of mixture of equal volumes of Fehling A and B was added to 2cm^3 of each extract in a test tube. The resultant mixture was boiled for 2 minute. A black red precipitate of copper oxide was observed from the fruit distilled with water, while the fruit mixed with ethanol give green coloration.

Table: Show the phytochemical analysis of *Solanum xanthocarpum* (L.) sampal in water and ethanol, [+++ sign indicate High concentration, ++ sign indicate Moderate concentration, _ sign indicate absent concentration of bioactive compound.]

Sr.No.	Name of compound	Water extract	Ethanol extract
1	Alkaloids	++	++
2	Steroids	++	++
3	Saponins	++	
4	Poly Phenols	+++	+++
5	Carbohydrates	+++	

RESULT AND DISCUSSION

Phytochemical analysis of *Solanum xanthocarpum* (L.), show Alkaloids and Steroids found to be present at moderate concentration in water and ethanol extract. Saponins found present in moderate concentration in water extract and those are absent in ethanol extract. Poly Phenol was found to be present in high concentration in water and ethanol extract. Carbohydrates found to be absent in ethanol extract but found to be present at high concentration in ethanol extract.

CONCLUSION

The result depicted from phytochemical analysis of *Solanum xanthocarpum* (L.) in crude extract on dry matter basis. The fruit show that the bioactive component like Alkaloids, Steroids, Saponins, Poly Phenol, and Carbohydrates was found to be in plant. This bioactive substance that produce a definite physiological action on human bodies which are used for medicinal purposes.^[11] In *Solanum xanthocarpum* (L.) Poly Phenol was found at higher concentration which shows antioxidant activity. So plant might be considerate as an interesting food to improve the antioxidant state of people leaving in India.^[9] *Solanum xanthocarpum* (L.) a prickly herb is immensely importance in traditional system of medicine apart from possessing various potential use including ecofriendly attributes.^[10] The purpose of

this research is to exhibit up-to-date and compressive information about photochemistry, pharmacological activities of the plant and has an insight in to the opportunity for the future research and development of plant.

REFERENCES

1. Abulude, F.O. phytochemical screening and mineral content leaves and vegetable of some Nigerian "Woody plant" Research Journal of Photochemistry, 2007; 1(1): 33-39.
2. Harborne, J.B. Nitrogen Compound. In Phytochemical Method, A Guide to modern Techniques of Plant Analysis, Published By Chapman and Hall, London, 1998; 3: 187-227.
3. Kokate, C.K. Practical Pharmacognocoy, Vallabh Kubma; prakashan India, 1994.
4. Shah N.C., Joshi MC, Ethnobotanical study the Kumaon of India. Econ. Bot, 1971; 25: 414-22.
5. Kar DM, Maharana L. Pattnaik S, Das GK, Studies on hypoglycaemic activity of Solanum xanthocarpum Schrad. & Wendl. Fruit extract in rat J. Ethnopharmacol, 2006; 108: 251-56.
6. Anonymous Availebal at: <http://www.gbif.org/> Accessed on 29-12-2015.
7. Kirtikar KR, Basu BD. Indian Medicinal Plant, International book Distribution, Dehradun, India, 2005; 2: 2392-93.
8. Bhatt B. Chemical constituents of Solanum xanthocarpum. J. Chem. Pharm. Res, 2011; 3(3): 176-181.
9. Enomfon J. and F. Usho, Phytochemical screening and effect of aqueous root extract of Taphia hookeri on metabolic clearance rate of ethanol in rabbits Biochem, 2004; 16: 37-42.
10. Marounck, M.D. Duskova and D. Brezima, Occurance, Biological activity and implication of phytic acid in nutrition. Biot. Listy, 2001; 65: 103-111.
11. Chan, k; m.w. Islam, M. Kamil, R. Radhakrusnan, M.N.M. Zakaria, M. Habibulas and A. Altas The analgesic and anti-inflammatory effect of Portulaca oleracia L. subp. Sativa (Haw.) Celak J. Ethnopharm, 2000; 73: 445-451.

Off. Principal

Late. N.P.W. College
Lakhani, Distt. Bhandara

