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Review Article

Bryophyllum Pinnatum Leaf Extract In Treatment Of Kidney Stones

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ABSTRACT

In Asiatic as well surrounding parts of world such as India, China, America, Africa, Bryophyllum pinnatum has been widely used as traditional medication to treat kidney stones i.e., Urolithiasis. Study based on clinical research are carried out to treat lithiasis by consuming fresh leaf juice of B. pinnatum which shows effective results by dissolving (<10mm) of diameter stones. For study 23 patients were taken into consideration and are diagnosed regularly and treated with 10 ml/day x 30 days of oral doses. Urine sample was collected on 30th day of trial and analysed properly. Overall, 85-87% patients show effective results and remaining patients shows moderate results. Major use of B. pinnatum in the treatment of lithiasis is that it alters the key risk factor by decreasing oxalate excretion and increasing citrate excretion.

INTRODUCTION

In country or a region, 10% of male and 3% of female having renal stones problem. Mostly seen at age of 35-45 years. Brophyllum pinnatum also known as Kalanchoe pinnatum. B. pinnatum is multipurpose ayurvedic plant used for antilithiasis activity and only used for lithiasis but also used for anti-diabetes, wound healing property, anti-cancer property, hepato protective activity. B. pinnatum locally called as Pathar kuchi and also pashanabheda is used to dissolve kidney stone.

The plant grows all over the world. It is especially use for treatment of renal /kidney stone and Gall Bladder. It is traditional plant, leaves, stem, root, branches, flowers are also having importance in treatment of many diseases. The plant grow 1m-2m in height and stems are usually branched and hollow, leaves are opposite decussate and 10-20cm long B. pinnatum contain wide variety of chemical consistents like alkaloids, flavonoids, steroids, lipids, triterpenes, glycosides, organic acid, citric acid, isocitric acid, bufadienolides, etc.

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B. pinnatum extracts show presence of saponin and anti-oxidant phytochemicals such as flavonoids and polyphenols which useful in treatment of anti-lithiasis activity. But some species are poisonous because it contains cardiac glycosides.

MATERIAL AND METHODS:

Material



Fig.1: Bryophyllum pinnatum leaves

Preparation of Bryophyllum pinnatum Leaf Extract:

Take ten to fifteen leaves of *B. pinnatum* and wash them. Then place in water and boil for few minutes, then collect the extract in bottle.

METHODOLOGY:

1. Patient:

Twenty-three patients age between 25 to 55 years of gender will be selected before startup of study. The patient who had less than 10mm in size were included in study and other patients advised for hospital treatment.

2. Diagnosis:

Before and after treatments patients, can be carried out by Ultra Sonographs and X-rays. Then stone size was recorded. The medium size (more than 10mm) and small size (5-2mm) will be recorded. Patients having more than 10mm size of stones to advice for hospital treatment. And we are included in study, different symptoms such as pain of flank, burning sensation show in patient to be recorded. All the volunteers should monitor every week.

3. Treatment:

The patient having kidney stone less than 10mm in size were treated with 10 ml/day x 30 days in oral

doses of juice of *B. pinnatum*. The patient should have this drink in empty at early morning. They should follow proper diet while treatment. The clinical responses to be recorded by comparing the before and after treatment by methods of ultra sonographs and x-rays films.

4. Urine Sample:

24-h urine sample are collected at baseline and on day 30th of trial periods and analysed. Then measured the oxalate, citrate, phosphate, urate and creatinine in urine sample by using assay kits. Urine analysis data used to calculate urinary supersaturation of uric acid, calcium phosphate and calcium oxalate are measured by using computer algorithms. In each sample urinary pH and volume are routinely measured.

PHARMACOLOGICAL ACTIVITIES

Anti Lithogenic activity

The clinical study shares the presence of anti-lithogenic activity of fresh leaf juice of *B. pinnatum* in the 23 clinically diagnosed patients of lithiasis with stone size ranging between (>5mm to <10mm diameter) treated by dose of 10 ml/day for 30 days orally, at early morning in empty stomach. Effective improvement was observed in 87% patient and remaining 13% also shows ordinary improvement.

DISCUSSION

B. pinnatum possess varieties of properties like anti-microbial, anti-fungal, anti-diabetic, anti-cancer and most importantly anti-lithiasis. Basically, whole plant is equally beneficial but leaves show anti-lithiatic activity as they contain important chemical consistent such as flavonoids and phenols which shows anti-oxidant and stone dissolving actions. Fresh leaf leaves juice is consumed to treat kidney stone (calcium oxalate crystals). Study have been shown effective response by dissolving the about 85-87% patients and moderate response by remaining patients. Ingestion of juice altered the most important risk factor is, decrease in oxalate while increasing in

citrate excretion. Plant shows high level secretion of citric acid mallic acid and malate which is helpful in increasing urine citrate level. As citrate is effective inhibitor of calcium oxalate stone formation. Urinary phosphate was also observed to be reduced; by decreasing calcium oxalate and increasing pH through dilution effect. The drug dose frequency should be assessed properly to treat kidney stones is very important prevent aftereffects.

RESULTS

Patients having renal stone size (<10 mm) can be treated by using *B. pinnatum* leaf extract. Leaf extract having high of citrate which plays as important role in inhibiting the calcium oxalate stone formation.

CONCLUSION

It may be concluded that *B. pinnatum* leaves extract can minimize the size of kidney stone. By increasing the concentration of extract, gradually stone in kidney get disintegrate and pass out from urine while urination. Patient having <16mm size of stone can be cured by extract of *B. pinnatum* leaves. Its drawback is that, it doesn't provide long-term preventing from lithiasis. It helps in developing non-toxic and low-cost alternative for treatment of lithiasis.

REFERENCES

1. Gahlaut A, Pawar S D, Mandal T K, Dabur R: Evaluation of clinical efficacy of *Bryophyllum pinnatum* salisb for treatment of lithiasis: *International Journal of Pharmacy and Pharmaceutical and Science*, 2012., ISSN:0975-1491.
2. Aditya Sai Ram Krishna: A review study of traditional medicine in curing kidney stone: *International Journal of Allied Medical Sciences and Clinical Research*, July-September 2017., ISSN:2347-6567.
3. Pasha Khooshbu, Imtiyaz Ansari: Pharmacognostical and Pharmacological review on *Bryophyllum Pinnatum*: *Asian*

Journal Of Pharmaceutical And Clinical Research., Issue 1, 2019.

4. Nagaratna A, Prakash L Hegde: A Comprehensive review of Parnabeeja: *Journal Of Medicinal Plants Studies: JMPS* 2015;3(5): 166-171., ISSN: 2320-3862.

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