

Biochemical characterization of the Plant Extract of *Achyranthus aspera* L.

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Abstract :

Phytochemical and biochemical screening of *Achyranthus aspera* L.(Aghada) belonging to family Amaranthaceae , was carried out for its medicinal value. A qualitative phytochemical analysis was done for the presence of bioactive molecules alkaloids flavonoids, glycosides, phenols, quinone , saponin ,tannin, terpenoids. Nutrients protein , total carbohydrates, total phenols reducing and Non - reducing sugars were assessed using standard procedures. Different observation revealed the presence of biologically active compounds and nutrients .

Key words : Medicinal plants , *Achyranthus aspera* , Biochemicals , bioactive molecules

Introduction :The use of herbs and medicinal plants as the first medicine is a universal phenomenon The information of the chemical constituents of medicinal plants is desirable for the therapeutic, medicinal value of folklore remedies . Standard screening methods have been used to study the pharmacological values and effect of biochemical compounds. *Achyranthus aspera* L . is glabrous perennial herb common everywhere along roadsides in plain areas, in the fields. Whole plant is useful but specially root and seeds used for treatment of rheumatism, seeds are nutritious cooked with milk and are potential source of food. A decoction of roots is used stomach complaints and aqueous extract for stones in the bladder .The root seeds and leaves is used in the form of juice and powder to treat excessive hunger , piles and kidney stone to wash painful eyes .

Materials and Methods :

Collection of sample: *Achyranthus aspera* L. were collected from Jalgaon and its surrounding area. The collected sample were washed thoroughly to remove dirt .Then sample were shade dried and powdered and stored in airtight container .

Preparation of extract: About 50 gm of powdered samples were weighed and extraction process was carried out by using different solvents ethanol, petroleum ether chloroform and water by soxhlet apparatus for 24 hours , then the extract is collected in sterilised bottles for further use for phytochemical screening. The phytochemical screening were carried out by using different solvent extract using standard methods to identify the constituent . Phytochemical estimation was carried out by using Harborne (1998) Trease and Evans (1997) Thimmaiah(1999) Sadasivam and Manickam (2005). For the estimation of nutrients like protein ,carbohydrates , total phenols, reducing and non reducing sugar , flavanoids malik and singh (1980), Evans , Kokate et al (1998) Trivedi and Goel (1984) Kulkarni and Apte (2000) .

Results and Discussion : From the results it was proved that the powder of the plant were treated with the chemicals like NaOH , H₂O,FeCl₃,HCl, KOH HNO₃ H₂SO₄ different shades of brown and green colour is obtained .Various colour changes were observed when treated with different chemical reagents (Table .1)

Table 01: Behavior of Plant powder with different chemical reagents.

Powder as such	Green
Powder + 2% FeCl ₃	Yellowish green
Powder+10 % NaOH	Yellow
Powder+ KOH	Yellow
Powder+ water shake	Brown
Powder+ Iodine	Yellow
Powder+ NaOH + H ₂ O	Yellow
Powder+C ₂ H ₅ OH	Light brown
Powder+HNO ₃	Orange red
Powder+H ₂ SO ₄	Light green

Biochemical screening was done to identify the active constituent of *Achyranthus aspera* L.the table .2 showed the results of presence or absence of nutrients and bioactive molecules.

Table .2 Showing the results of presence or absence of bioactive molecules

Sr.No.	Test	Observations	Inference
1	Substance +alcohol +FeCl ₂	Greenish Yellow	Phenols present
2	0.5 gm substance +20 ml water + 0.1 % FeCl ₂	Brownish green	Tannins present
3	Substance + sudanIII	Bright orange colour	Fats present
4	Substance +10% NaOH	Green brown	Flavonoids present
5	Substance shaken in water	Frothing present	Saponins present
6	Substance + chloroform +acetic acid 2-3 drops, heated + conc. H ₂ SO ₄	Orange	Steroids absent
7	Substance +conc.HCl	Green	Quinone present
8	Substance + iodine followed H ₂ SO ₄	Brown	Cellulose absent
9	Substance +2ml chloroform+ Conc. H ₂ SO ₄	Light orange	Terpenoids absent
10	Substance +2 ml glacial acetic acid + 1 drop of FeCl ₃ + 1 ml conc. H ₂ SO ₄	Brown	Glycosides absent

Table.3 Showing Nutrient content per 100ml

Sr.No.	Volume of sample	Proteins Mg/100ml	Carbohydrates Mg/100ml	Phenols Mg/100ml	Reducing sugar mg /g ⁻¹	Total soluble sugar mg /g ⁻¹
1	0.1 ml	270	380	320	--	--
2	0.2 ml	350	270	555	--	---
3	0.3 ml	775	120	60	10.9	56.54

Conclusion :

Plant material treated with different chemicals shows colour change in brown , greenish yellow and orange. The phytochemical screening of the plant material for various bioactive component present for their medicinal properties many of them showed positive results which shows the presence of these compounds actively .The test for nutrient content shows more protein than carbohydrates and phenols. The presence of total soluble sugars is higher than reducing sugar.

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