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Evaluation of *Hemidesmus indicus* root as an antacid by *In vitro*

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Abstract: Medicinal plants are being widely used, either as single drug or in combination in health care delivery system. Indian Sarsaparilla, *Hemidesmus indicus* (Family: Asclepiadaceae) is a commonly known Indian Medicinal Plant, which is widely recognized in traditional systems of Medicine. It contains various phytoconstituents belonging to the category glycosides, flavonoids, tannins, sterols and volatile oils. It has been reported as useful in biliousness, blood diseases, dysentery, diarrhea, respiratory disorders, skin diseases, syphilis, fever, leprosy, leucoderma, leucorrhoea, itching, bronchitis, asthma, eye diseases, epileptic fits in children, kidney and urinary disorders, loss of appetite, burning sensation, dyspepsia, nutritional disorders, ulcer and rheumatism. Several studies are being carried towards its activities like analgesic, anti-inflammatory, antiulcer, hepatoprotective, antioxidant and helicobactericidal properties. In our study we have evaluated antacid activity of sariva (Anantmool) by using In-Vitro method, i.e. ANC (Acid Neutralizing Capacity). This evaluation was done by comparing the ANC of sariva macerated & powdered drug with water as blank & standard drug i.e. $NaHCO_3$. Based on this In-Vitro experiment, we can conclude that, the macerated & powdered drug of sariva (Anantmool) evaluated in this study, varied in potency as measured in terms of their ANC. These results having ** i.e. $P < 0.01$ & Passed the normality test. However, the present study being in-vitro, the effects of antacid may vary In-Vitro; individual variations also contribute to the ultimate effectiveness of as antacid.

Key words: *Hemidesmus indicus*, sariva, (Asclepiadaceae), Indian sarsaparilla, ANC

Introduction

Ulcer is a pathological condition, occurred due to unbalancing between aggressive and defensive factors. They develop when digestive juices produced in the stomach, intestines, and digestive glands damage the lining of the stomach. The antiulcerogenic effect of *Hemidesmus indicus* was mainly because of its high mucoprotective activity, depicted by a selective increase in prostaglandin content. Therefore, it provides another alternative for ulcer treatment. It aims at enhancing the defensive factors so that the normal balance between offensive and defensive factors is achieved.

Materials and Methods

Plant Materials

The climber plant Indian Sarsaparilla, *Hemidesmus indicus* (Family: Asclepiadaceae) were collected from Malegaon city, Dist- Nasik (Maharashtra). The dried uniform root powder was used for the maceration of constituents of the plant, determination of *In vitro* antacid investigation.

Plant Extraction by Maceration procedures

30 g of dried powdered root was taken into 150ml of acidified water (Water + 1part of Chloroform) and it is sitter for 3days with half hour stirring at every 6-hour interval. And in porcelain dish Evaporate the solvent on constant heating on heating mental at temp not exceeding 35°c.

Drugs and Chemicals

All the observations and the figures obtained by calculations are in mEq for the groups like water as blank, NaHCO3 as standard, one marketed preparation and two crude drugs i. e. macerated & powdered form. These all groups shows different readings but in same proportion as explained below.

Antacid Activity (ANC)

Weigh 0.5 g of extract and transfer to 250 ml beaker. Transfer 70 ml of distilled water in to beaker. Mix this solution for 1 min with magnetic stirrer. Add 30 ml of 1 M HCL to above solution and stir with magnetic stirrer for 15 min Titrate excess of HCL with 0.5M NaOH to attain stable pH of 3.5 (for 10-15 sec).

Note: For standard weigh 0.5 g of NaHCO3 and transfer to 250 ml beaker. And follow the similar procedure to get the reading.

Statistical Analysis

The standard deviation & Standard error of mean was calculated for each group. ANOVA test was done by using software "Graph pad. Instat Version 3.10, 32 bit for windows". The post analysis by Dunnett's test and no adjustment for p-value was done. The level of significance considered was 1%. Analysis of variance (ANOVA) was performed with post analysis by" Dunnett's Test". For this comparison reading for all types were pooled to obtain a mean value. All formulae were as per the USP Method. (If the value of q is greater than 2.650 then the P value is less than 0.05.)

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Results and Discussion

In our study we have evaluated antacid activity of sariva (Anantmool) by using *In vitro* method, i.e. ANC (Acid Neutralizing Capacity). And this evaluation was done by comparing the ANC of sariva root macerated & powdered drug with water as blank & standard drug i.e. $NaHCO_3$.

Table 1: Table 2 Comparison Table for 1N HCl

Comparison	Mean Difference	Q	P value
Standard vs Blank	7.960	20.658**	P<0.01
Standard vs Marketed	2.670	6.929 **	P<0.01
Standard vs Test 1	4.810	12.483**	P<0.01
Standard vs Test 2	5.380	13.962**	P<0.01

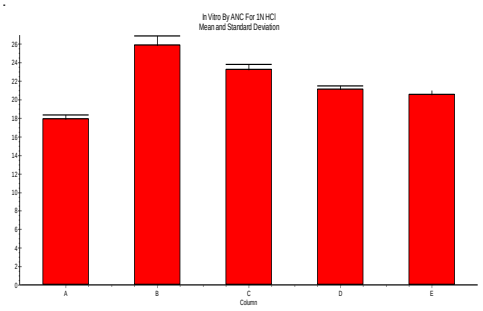

Figure 1: *In vitro* by ANC Mean & Standard Deviation Graph for 1N HCL

Table 2: Comparison Table for 0.5N HCl

Comparison	Mean Difference	Q	P value
Standard vs Blank	8.080	21.475**	P<0.01
Standard vs Marketed	3.240	8.611 **	P<0.01
Standard vs Test 1	4.590	12.200**	P<0.01
Standard vs Test 2	5.970	15.867**	P<0.01

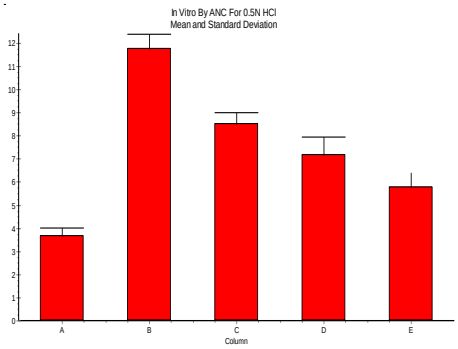

Figure 2: *In vitro* by ANC Mean & Standard Deviation Graph for 0.5N HCL

Table 3: Comparison Table for 0.1 N HCl

Comparison	Mean Difference	Q	P value
Standard vs Blank	5.630	27.771**	P<0.01
Standard vs Marketed	2.310	11.394**	P<0.01
Standard vs Test 1	2.950	14.551**	P<0.01
Standard vs Test 2	3.420	16.870**	P<0.01

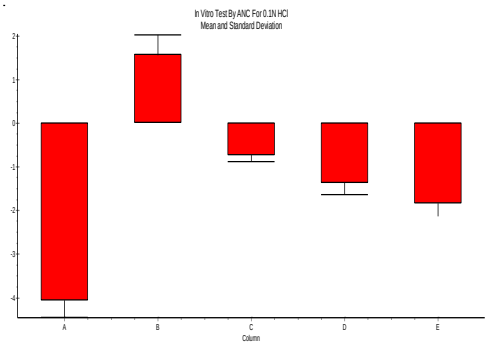

Figure 3: *In vitro* by ANC Mean & Standard Deviation Graph for 0.1N HCL

All the observations and the figures obtained by calculations are in mEq for the groups like water as blank, NaHCO3 as standard, one marketed preparation and two crude drugs i. e. macerated & powdered form. These all groups show different readings but in same proportion as explained below.

Results for the 1N/0.5N/0.1N as normality of HCl shows standard drug, NaHCo3 has highest mEq and blank water has lowest one. The marketed preparation and our drug show in between values of mEq, from that the macerate of sariva root shows more effect than powder of sariva root. And the marketed preparation shows more effect than the macerate.

Based on this *In vitro* experiment, the macerated & powdered drug of sariva root (Anantmool) evaluated in this study, varied in potency as measured in terms of their ANC. These results having ** i.e. P < 0.01 & Passed the normality test. The level of significance considered was 1%. Analysis of variance (ANOVA) was performed with post analysis by" Dunnett's Test". For this comparison reading for all types were pooled to obtain a mean value. One-way Analysis of Variance (ANOVA): The P value is < 0.0001, considered extremely significant. Variation among column means is significantly greater than expected by chance. All the readings are compared with standard column by Dunnett Multiple Comparisons Test. If the value of q is greater than 2.650 then the P value is less than 0.05.

Conclusion

In our study we have evaluated antacid activity of sariva (Anantmool) by using *In vitro* method, i.e. ANC (Acid Neutralizing Capacity). This evaluation was done by comparing the ANC of sariva macerated & powdered drug with water as blank &standard drug i.e. NaHCO3.

Based on this *In vitro* experiment, we can conclude that, the macerated & powdered drug of sariva (Anantmool) evaluated in this study, varied in potency as measured in terms of their ANC. These

results having ** i.e. P < 0.01 & Passed the normality test.

However, the present study being *In vitro*, the effects of antacid may vary *In vitro*; individual variations also contribute to the ultimate effectiveness of as antacid.

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Resources

- http://digestive.niddk.nih.gov -- National Digestive Diseases Information Clearinghouse
- www.gastro.org -- American Gastroenterological Association
- www.acg.gi.org -- American College of Gastroenterology.

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