iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 8 **Issue:** VIII **Month of publication:** August 2020

DOI: https://doi.org/10.22214/ijraset.2020.31122

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue VIII Aug 2020- Available at www.ijraset.com

Herbal Drinking Water and Its Uses

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Abstract: ***Water is an important which plays a major role. It gives life to plants, animals and all living things. It is the universal solvent of many reactions. Safe drinking water is the water that can delivered to the personal hygiene. Water covers more than two thirds of earth surface, but mostly salty and undrinkable. Herbal water extraction of drinking water is good for health and other issues. Water is connected day to day life directly or indirectly. Herbal water provides number of benefits and services for humans and the ecosystem. Based on herbal ingredients, each herbal has health benefits. The study based on water is the important of arsenic in the life. In India more than 25 million people of 15 states are drinking high contaminated water and severe threat of fluorosis. I rural areas, ground water is the main source of drinking water. In recent studies of waters in India they collected and analysed temperature, pH, conductivity, total solids, turbidity, hardness, alkalinity, chlorides, sulphates, fluorides, nitrates, calcium. It was found all the tests were above maximum permissible limit. The microbial pollution are arising waterborne diseases are health problem now a days.***
Keywords: Drinking water, water treatment, antibacterial activity, anti oxidant activity ,herbs .

I. INTRODUCTION

Herbal waters are well known all over the world as a rich – source of therapeutic agents for prevention of various diseases. Herbal water has good anti oxidant, anti cancer activity compare to normal drinking water. Herbal plants are used from due to safety less side effect as compare to synthetic drugs .Today large numbers of populations suffers from many microbial diseases etc.., Our projects focuses on how the herbal waters samples intaken by humans. Human body contains up to 70 percent water, and water is necessary for everything the body does. So drinking water is very good but sometimes we'd all like something different - a beverage that's healthy, refreshing, and full of flavour. Keeping hydrated is crucial for health and well-being, but many people do not consume enough fluids each day. When dehydrated, the skin can become more vulnerable to skin disorders and wrinkling. Water may also help with weight loss, if it is consumed instead of sweetened juices and sodas. water has many varieties such as,

1) Tap water,
2) River water,
3) Lake water,
4) Herbal water,
5) Mineral water,

Who classified that drinking water should safe, no coliforms should present. Water diseases are killing a million people of a year. Some 60% infants mortality was linked to infectious and parasitic diseases, most of them water related. Water borne diseases are dirty water those caused by contaminated by animals and chemical waste. Water borne diseases are cholera, typhoid, shigella, polio etc

II. MATERIALS

Table1: list of samples and ingredients used.

S.NO	Samples	Images	Parts used	Category
1	Control: mineral water		water	Mineral water
2	Theeratham		powder	detergent

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3	*Caesalpininasappan*-(Pathimugam)		bark	antioidant
4	*Chrysopogon zizanioides* (Vetiver)		root	Coolant, antibacterial activity.
5	*Strychnos potatorum* (Thetrankottai)		seed	Antioxidant activity
6	*Hemidesmusindicus* (Nannari)		root	Cooling agent.

III. METHODOLOGY

A. Collection of Samples

1) Control: mineral water got from super market.

2) Theeratham: It is the holy powder, got from commercial market.

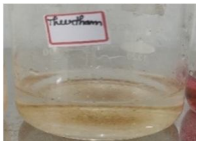
3) Caesalpininasappan (Pathimugam): Source collected form the local organic store.

4) Mixed herbs**:** *Chrysopogonzizanioides* (Vetiver), *Strychnos potatorum* (Thetrankottai), *Hemidesmusindicus* (Nannari)

B. Preparation Of Samples

1) Control: Recommended mineral water collected from super market.

2) Theertham: It is the holy powder, got from commercial market. And it is take 5g for one litre water.



3) Pathimugam Water: Caesalpininasappan is boiled until colour changes into light pink. Source collected from the local organic store.

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4) Mixed herbal Water: It is the composition of *Hemidesmusindicus, Chrysopogonzizanioides* and *Strychnospotatorum.* The whole components were weighed about 5g each and tied in a muslin cloth. Approximately 1 litres of recommended water is taken in a pot. Tied components is dipped in a pot and placed on the morning sunlight (8am to 9am) for a day.

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C. Chemical Parameters

1) Alkalinity test were done by titration method by sulphuric acid to certain pH point.
2) Chloride test were done by silver nitrate as titrant is based on Mohr's method.
3) Total hardness were done by EDTA solution.
4) Calcium were tested by with hydrochloric acid tiratration method.
5) Magnesium is tritrated with EDTA solution using Erichrome black T.

D. Anti Bacterial Activity

1) *Source:* Bacteria cultures were 2 postive strain and 4 negative strain bacteria are used: Positive - *Staphylococcus aureus, Bacillus subtilis*. Negative - *Escherichia coli, Pseudomonas aeruginosa, shigella, klebesilla.*
2) *Procedure:* Anti bacterial activity of herbal water samples
3) *Agar well Diffusion Method:* Agar well diffusion method is widely used to evaluate the antimicrobial activity of plants or microbial extracts. Similarly to the procedure used in disk-diffusion method, the agar plate surface is inoculated by spreading a volume of the microbial inoculum over the entire agar surface. Then, a hole with a diameter of 6 to 8 mm is punched aseptically with a sterile cork borer or a tip, and a volume (20–100 µL) of the antimicrobial agent or extract solution at desired concentration is introduced into the well. Then, agar plates are incubated under suitable conditions depending upon the test microorganism. The antimicrobial agent diffuses in the agar medium and inhibits the growth of the microbial strain tested.

E. Anti-Oxidant Activity

The free radical scavenging activity of water fraction by DPPH method exhibited a concentration dependent response. The methanol fraction was found to be the most active free radical scavenger (96.2% decrease at a concentration of100µg/ml) followed by92%. The methanol fraction demonstrated maximum reducing activity among the fractions. The activity was greater than the ascorbic acid. The coloured solution was read at 600nm against the blank with reference to standard using UV-spectrophotometer here, ascorbic acid was used as a reference standard.

IV. EXPERIMENTAL RESULTS

A. Chemical Parameters

Tabl 2: list of chemical parameters.

Chemical parameters	Mneral water mg/l	Theertham Water mg/l	Pathimugam Water mg/l	Mixed herbal Water mg/l	Permissible standard amount
pH	7	6.5	6.73	6	6.5-8.5
Alkalinity	92	30	39	42	30-400mg/l
Total hardness	83	24	20	28	< 60 mg/l
Calcium	34	5	4	3	20 Average
Magnesium	10	1	3	2	2- 11 mg/l
chloride	12	5	9	10	10

As per result, the sample of comparing herbal waters and tap water, tap water is higher than permissible amount

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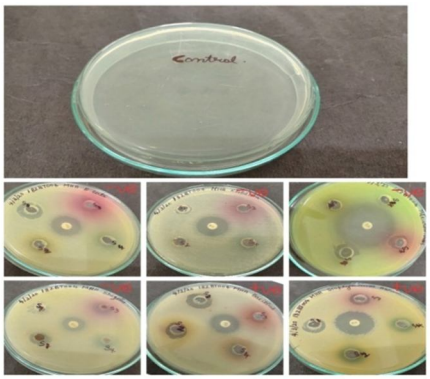
B. Anti-Bacterial Activity

The anti-bacterial activity was done in different herbal water samples, Theertham, Pathimugam, Mixed herbal water respectively. There is no zone of inhibition around water samples as bacterial strains grow well in these herbal waters.



C. NTI-OXIDANT Activity on Herbal Water Samples

The optical density (O.D) value is read using UV spectrophotometer at 600nm for all the three samples of herbal water. The Theertham shows higher amount of anti-oxidant activity.

V. CONCLUSION

A study was conducted to removal or kill of bacteria in various household waters. It is easy method. It treats infectious diseases. Medicinal plants have many antimicrobial and other health benefits properties. The herbal used in this study which each ingredient targets different health concerns and work on them to provide a healthy life. They serve to fight the deficiencies in human body were selected using the ayurveda knowledge. Water quality standards by world health organization. The added herbs increased the nutritional and medicinal properties of the drink and made the drink more acceptable to the consumers. This drink is a blend of various essential vitamins. So instead of consuming various products, this one drink would be sufficient to replenish the needs of the body.

VI. ACKNOWLEDGEMENT

The author express their gratitude towards the host institution Dr.N.G.P. Arts and Science College, Management, Principal, Deans, Head of the Department, Guide and all other staffs of Department of Biotechnology , Exeternal funding agency DBT, SERB, DST, ICSSR, ICHR, Host Instittution research facilities and infrastructure, DST- FIST Scheme, DBT-Star Scheme, for rendering all the facilities for support. Communication No: DrNGPASC 2020-21 BS031.

REFERENCES

[1] Abdul Razack S, Duraiarasan S, SanthalinShellomith AS, Muralikrishnan K. Statistical optimization of harvesting Chlorella vulgaris using a novel bio source, Strychnospotatorum. 2015 Jul 3;7: 150-156.
[2] Bach JF. Protective role of infections and vaccinations on autoimmune diseases. J Autoimmun 2001; 16:347–353 [PubMed] [Google Scholar]
[3] Carlton, A., Orr, R.M. (2015, December). The effects of fluid loss on physical performance: A critical review. Journal of Sport and Health Science, 4(4), 357-363.
[4] Dennis EA, Flack KD, Davy BM. Beverage consumption and adult weight management: A review. Eat DiMeglio DP, Mattes RD. Liquid versus solid carbohydrate: effects on food intake and body weight. Int J ObesRelatMetabDisord. 2000; 24:794–800. [PubMed] [Google Scholar]
[5] Do QD, Angkawijaya AE, Tran-Nguyen PL., Huynh LH, Soetaredjo FE, Ismadji S, Ju YH. Effect of extraction of solvent on total phenol content, total flavonoid content and antioxidant activity of Limnophilaaromatica. J Food Drug Anal. 2014; 22: 296-302.
[6] Geeta, Vasudevan DM, Kedlaya, R., Deepa, S., Ballal, M.: Activity of Ocimum sanctum (the traditional Indian medicinal plant) against the enteric pathogens, Indian Journal of Medical Sciences, 55, 434–443, 2001.10 Harold, B. J.: Microbiological Application-Laboratory Manual in General Microbiology, 8th Edition,
[7] Germolec D, Kono DH, Pfau JC, Pollard KM. Animal models used to examine the role of the environment in the development of autoimmune disease: findings from an NIEHS Expert Panel Workshop. J Autoimmun2012; 39:285–293 [PMC free article] [PubMed] [Google Scholar] 15.
[8] Jigna Parekh, NehalKarathia and SumitraChanda, Screening of some traditionally used Medicinal plants for potential antimicrobial activity, Indian J. Pharm. Sci, 68 (6), 2006.
[9] Khadase G.K, Andey S.P and Nanoti M.V, Rural Water Supply and need for Water Quality assessment: A case study, Journal of Environ. Science &Engg, 47 (3), 2005, 242-249
[10] Martinez, M. J., Betancourt, J., Alonso Gonzalez, N., and Jauregui, A.: Screening of some5 Cuban medicinal plants for antimicrobial activity, J. Ethnopharmacol., 52, 171–174, 1996

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[11] Maughan, R.J., & Griffin, J. (2003, December). Caffeine ingestion and fluid balance: a review. Journal of Human Nutrition and Dietetics. 16(6):411-20.
[12] Mourao DM, Bressan J, Campbell WW, Mattes RD. Effects of food form on appetite and energy intake in lean and obese young adults. Int J Obes (Lond) 2007; 31:1688– 1695. [PubMed] [Google Scholar]
[13] Oyaizu M. Studies on product of browning reaction prepared from glucose amine. Jpn J Nutr. 1986; 44: 307-15.
[14] Pozzilli P, Signore A, Williams AJ, Beales PE. NOD mouse colonies around the world—recent facts and figures. Immunol Today 1993; 14:193–196 [PubMed] [Google Scholar]
[15] Rama Sadul, MilindGidde, Bipinraj N.K, The thesis on Herbal disinfection of water, 2009.
[16] Salminen SJ, Gueimonde M, Isolauri E. Probiotics that modify disease risk. Journal of Nutrition. 2005; 135(5):1294–1298. [PubMed] [Google Scholar].
[17] Tanushree Bhattacharjee, Milind R. Gidde, Disinfection of Drinking Water in Rural Area Using Natural Herb, International Journal of Engineering Research and Development, 5 (10), 2013, 7-10 .
[18] venugopal Amrita, Dasani Sonal and RaiShalini: Antibacterial Effect of Herbs and Spices Extract on Escherichia coli, Electronic Journal of Biology, 5, 40–44, 2009
[19] Wolf A, Bray GA, Popkin BM. A short history of beverages and how our body treats them. Obes Rev. 2008; 9:151–164.[PubMed] [Google Scholar]
[20] Ziemer CJ, Gibson GR. An overview of probiotics, prebiotics and synbiotics in the functional food concept: perspectives and future strategies. International Dairy Journal. 1998; 8(5-6):473–479. [Google Scholar].

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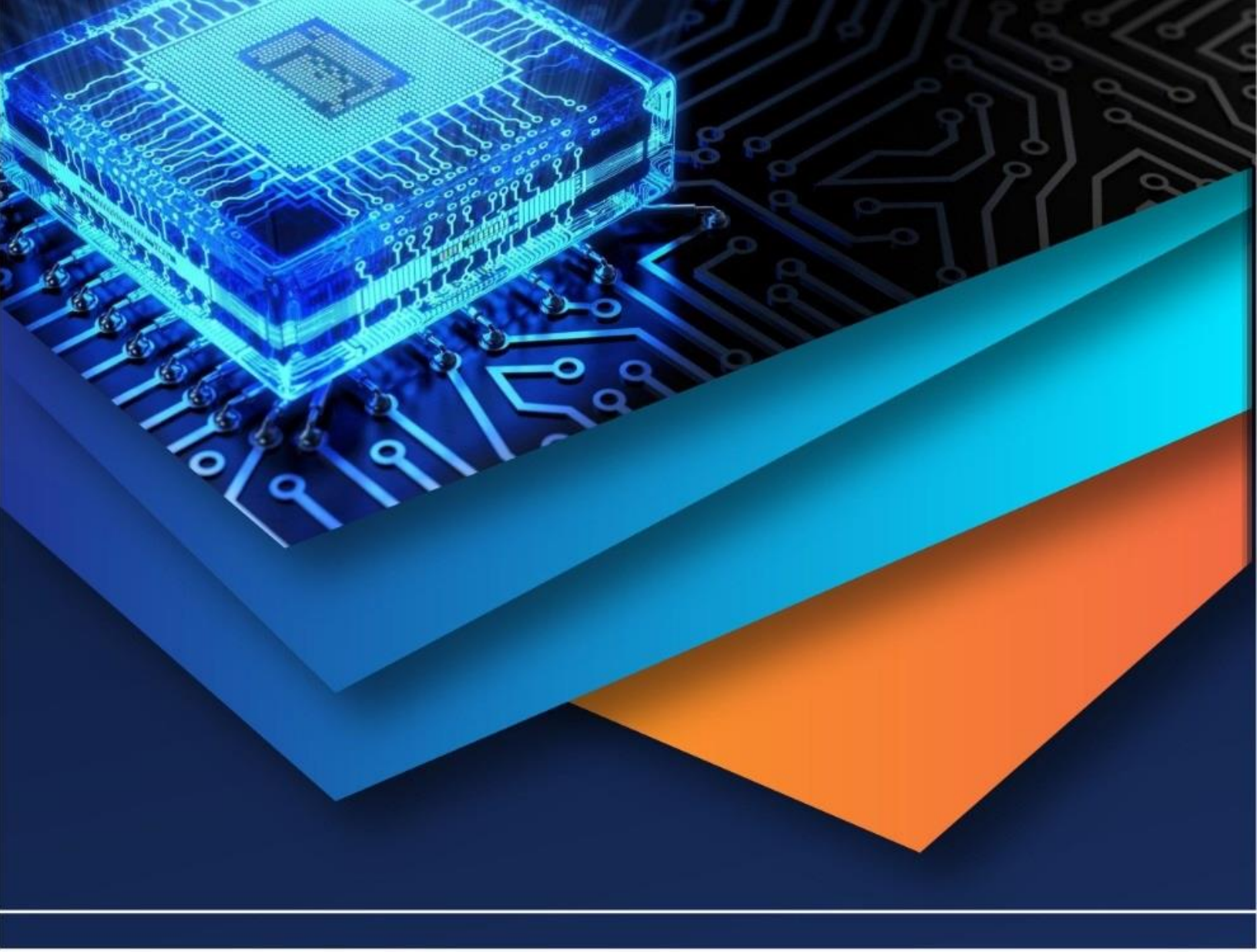

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