

Implementation of Hibiscus for making Tea : The Widely Consumed Beverage

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Abstract:- Flowers in Indian subcontinent are source of unexplored herbal jewels. Such a flower is “Hibiscus rosa sinesis”. It includes antioxidants, tannins, anthocyanins and flavonoids etc. Flowers after harvesting are dried in a tray drier till powder formation. They are evenly crushed evenly and moisture content is reduced to 90.7 % (wet basis). After this their polyphenol content is estimated in equivalent terms of gallic acid and compared with the polyphenol content of market available green tea which showed a value higher than that of green tea (hibiscus petals- 21.009gm whereas for green tea-0.26668gm). It has nutritional benefits like reducing chances of cancer, reducing cholesterol levels and clearing of digestive tract.

I. INTRODUCTION

Nature has always been an enormous source of herbal treasures which mankind can hardly fathom. The flowers in the Indian subcontinent are a source of unexplored jewels. One such flower is “Hibiscus rosa sinesis”. It includes beneficial components like flavonoids, tannins, antioxidants, anthocyanins and many more.

A. Materials and apparatus used: -

1. Hibiscus Petals (Red Colored)
2. Tray Drier 3. Petridish 4. Weighing Scale 5. Mortar and Pestle 6. Folin-Ciocalteu Solution 7. Sodium Carbonate Solution 8. Spectrophotometer 9. Test tubes 10. Distilled Water 11. Beaker

B. First Stage-Dehydration Step:-

Freshly plucked Hibiscus petals were plucked and kept in tray drier at a controlled temperature of 65°C for six hours.

Weight of tray-400 gm

Weight of petridish + hibiscus petals-421gm

Weight of hibiscus petals -21gm

Weight of hibiscus petals after six hours-1.95gm

% of Moisture Content removed (Wet Basis) – $((21-1.95)/21)*100=90.71\%$

% of Moisture Content removed (Dry Basis)- $((21-1.95)/1.95)*100=976.92\%$

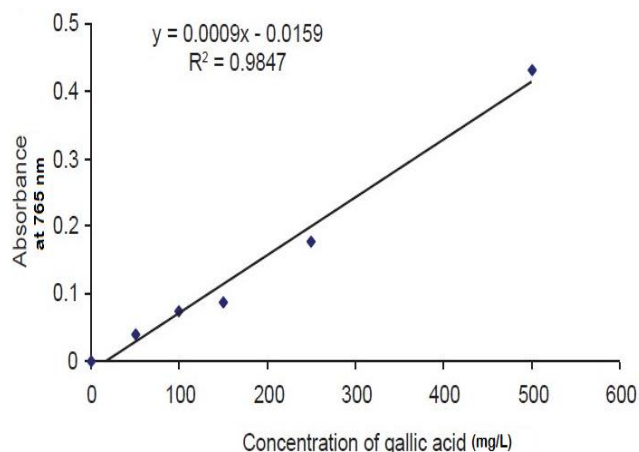
C. Second Stage-Crushing

After the petals were dried they were crushed finely in mortar and pestle for fifteen to twenty minutes and powder was obtained.

D. Third Stage- Polyphenol content estimation:-

The dried powder was now being selected for polyphenol estimation. In 35 ml of distilled water 0.75 gm of sample powder was left for 24 hours to soak. Folin Ciocalteu reagent was made by dissolving 5 gm of it in 45ml distilled water. Sodium carbonate solution was prepared by dissolving 5.3 gm in 50ml distilled water.

Two test tubes were prepared. One as the blank tube having 5ml Folin Ciocalteu and 4ml of sodium carbonate in it. The other tube was made for sample estimation having 0.5ml sample 5ml Folin Ciocalteu solution and 4ml of sodium carbonate solution. The tubes were kept in darkness for fifteen minutes and were put in spectrophotometer which was set up in the wavelength range of Gallic acid (765 nm) for polyphenol estimation. The standard curve was drawn at this wavelength.



Equation of Graph: - $y=0.0028x-0.2026$

From spectrophotometer value of $y=1.058\text{mg/l}$

Therefore $x=450.214\text{mg/l}$

0.5 ml has $(0.5*450.214)/1000=0.225107\text{mg}$

Due to 10 times dilution the value becomes 2.25107mg which is the same amount contained in 0.5ml of sample.

The actual solution had 35 ml water so 35 ml of solution has $(2.25107*35)/0.5=157.57\text{mg}$

This is the same amount in 0.75g of sample powder.

So 100 g of sample has $(150.57*100)/075=21009.9$ mg i.e 21.009 gm of polyphenol content (equivalent of Gallic acid).

II. RESULT AND CONCLUSION

It was found that each 100 gm of hibiscus powder has 21.009 gm of polyphenol content equivalent of Gallic acid. Compared to green tea whose polyphenol content is 0.26668gm (266.68mg) is much more. So it can be consumed as an herbal beverage for regular purposes.

REFERENCES

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- [3]. (Masella et al., 1999).