



SULPHUR ESTIMATION IN SOME MEDICINAL PLANTS FOR HERBAL HAIR OIL

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ABSTRACT Hair plays a vital role in the personality of human which are the eruptions from the skin. Natural herbal hair oils are gaining importance as they maintain moisture and improve the overall conditioning of the hair. The present work aimed at estimating the sulphur content in some of the selected medicinal plants as it plays an important role in building many amino acids. Twelve different medicinal plants were screened for sulphur content. The sulphur content was estimated using EDTA method. The highest percentage of sulphur was observed in *Murraya koenigii* and lowest was in *Punica granatum*.

KEYWORDS : Sulphur, hair, EDTA, amino acids

INTRODUCTION:

Hair is an important part of the body originated from ectoderm of the skin and acts as protective appendage on the body which are filamentous biomaterial made of a protein called keratin and human hair is made from this protein, which is having high sulphur content (Bandhe *et al.*, 2015). The presence of sulphur gives healthy hair its strength and elasticity, conversely the absence of enough sulphur leads to brittle hair that is easily broken. Sulphur has been proven to lengthen the growing phase of hairs.

Herbal cosmetics are formulated using various permissible cosmetic ingredients to form the base in which one or more herbal ingredients are used to provide defined cosmetic benefits. The demand of herbal medicines is increasing rapidly due to their skin friendliness and lack of side effects because they are purely made by the herbs.

The present study aimed to estimate the sulphur content in the few selected medicinal plants.

MATERIALS AND METHODS

Fresh leaves of various plants were collected from botanical garden, Mount Carmel College, Bengaluru and GKVK, UAS, Bengaluru. The collected plant leaves were dried in the shade for around 5-7 days so as to completely remove their moisture content. The dried plant parts were ground finely. Following grinding, the plant parts in powder form are sieved through a cheese cloth and stored in air tight containers.

SULPHUR ESTIMATION

The total sulphur content of selected plants was estimated by EDTA titration method Basson, 1967. 1g of finely ground powder was taken in a conical flask. 10ml of nitric perchloric acid was added to the solution and kept for boiling until the white fumes appear. After the solution turned pale greenish yellow colour, the flask was cooled. 40ml distilled water was added and boiled at room temperature for 15 minutes. The solution was filtered and the residue was washed with hot water. The filtrate was neutralized with 1:1 ammonia solution using methyl red as indicator, then acidified with 2ml of 1:1 HCl and diluted to 200ml. 10% warm BaCl₂ was added drop wise with constant stirring till precipitate formed. The precipitate was allowed to settle and the precipitate was collected. To the precipitate 20ml of EDTA solution and 2-3ml of 0.5M NaOH solution was added and kept for boiling for 10-15 minutes. After cooling 10 ml of ammonium chloride buffer solution of pH10, eriochrome black T indicator was added and titrated against magnesium solution. Percentage of sulphur was calculated using the formula.

$$\% \text{ sulphur} = \frac{T \times M \times 1.603}{W}$$

Where, T = ml EDTA in the complexing of the Ba²⁺, M = molarity of EDTA, W = weight of sample

Results and discussion

From the present study it was found that curry leaf showed the maximum percentage of sulphur content (0.38 ± 0.0010) while

pomegranate showed minimum percentage of sulphur content (0.10 ± 0.0007).

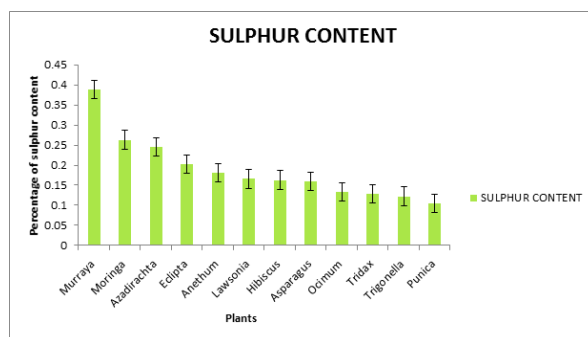
Sulphur is required for healthy connective tissue formation. Hair requires sulphur for normal growth and appearance. Sulphur is present in the amino acids methionine, taurine and cysteine which make up protein structures in the body. L-Methionine, one of four sulphur-containing amino acids, supports hair strength by providing adequate amounts of sulphur to hair cells. L-Cysteine - supports hair strength by the provision of sulphur.

TABLE-1 Total sulphur content in different medicinal plants

Sl.No.	SAMPLE	Mean \pm SE
1	<i>Murraya koenigii</i>	0.38 ± 0.0010^a
2	<i>Moringa oleifera</i>	0.26 ± 0.0014^b
3	<i>Azadirachta indica</i>	0.24 ± 0.003^b
4	<i>Eclipta alba</i>	0.20 ± 0.0017^c
5	<i>Anethum graveolens</i>	0.18 ± 0.0010^d
6	<i>Lawsonia inermis</i>	$0.16 \pm 0.0003e$
7	<i>Hibiscus rosa senensis</i>	0.16 ± 0.004^e
8	<i>Asparagus officinalis</i>	0.15 ± 0.0003^e
9	<i>Ocimum sanctum</i>	0.13 ± 0.0003^f
10	<i>Tridax procumbens</i>	$0.12 \pm 0.0003g$
11	<i>Trigonella foenum graecum</i>	0.12 ± 0.0003^e
12	<i>Punica granatum</i>	0.10 ± 0.0007^h

The superscribed alphabets indicate the number of ranges indicating values of %, GI, SVI, MGT values having same alphabets did not differ significantly as determined by LSD ($p < 0.05$)

FIG -1 Sulphur content in different medicinal plants



CONCLUSION

It was concluded from the study that sulphur present in the plants play a significant role in helping the growth of the human hair as sulphur is the basic chemical for building up of amino acids.

ACKNOWLEDGEMENT

The authors are grateful to Mount Carmel College, Autonomous, Bengaluru, Karnataka, India for the financial assistance to carry out the research work.

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