ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 15, Issue, 11, pp.26345-26346, November, 2023
DOI: https://doi.org/10.24941/ijcr.46270.11.2023

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

ISOLATION AND CHARACTERIZATION OF SEED OIL OF *BASELLA RUBRA* LINN

***Dr. Sumeru Singha**

Krishna Guru Adhyatmik University, Barpeta, India

ARTICLE INFO

Article History:
Received 15th August, 2023
Received in revised form
17th September, 2023
Accepted 25th October, 2023
Published online 17th November, 2023

Key words:
Pollution, Pests, Chlorine.

***Corresponding author:**
Singha Sumeru

ABSTRACT

Steroids have very important physiological impact on biological system. β-sitosterol and stigmasterol glucosides isolated from natural sources enjoy immense importance in neat substituted from. This paper reports for the first time the detection and successful isolation of these sterol members in good yield from the medicinally important plant Basella rubra Linn.

Citation: ***Dr. Sumeru Singha.*** **2023.** "Isolation and Characterization of seed oil of *Basella rubra* Linn*". International Journal of Current Research*, 15, (11), 26345-26346.

INTRODUCTION

Plant samples of Basella rubra L growing in different parts of Barak Valley during the period of October to April were collected. Mature seeds of the plant were collected from several growing areas in Barak Valley during early, mid and late cropping and air dried at ambient temperature (~25^{0}C). These samples were analysed separately.

Extraction of seed oil: Dry seeds (100g) were ground in a mill and oil was extracted by shaking ground seeds in a shaker with 400ml hexane for 3 hr. at ambient temperature in a sealed container. The extract was filtered through Whatman No. 1 filter paper atop Buchner funnel applying suction. Residue was subjected to re-extraction, each time followed by filtration. The pooled filtered extracts were subjected to rotary vacuum evaporation at ~25^{0}C. The resulting oil was transferred to amber bottle and last traces of solvent were removed by a nitrogen purge followed by continuous vacuum application overnight at ambient temperature.

Yield of oil (unrefined): 27 - 29% w/w of dry seeds.

Characterisation of the seed oil: The physico-Chemical parameters of seed oil of Basella rubra L determined by following standard methods (Sadasivam *et. al*. 1996: Sathe, 1999; Sen *et. al*, 200).

Colour: Lovibond tintometer is used to determine colour of the seed oil. Here colour 1s measured by comparison with Lovibond glasses. The cell of tintometer is cleaned with CCl_4 and dried. It is now filled with filtered oil. Lovibond yellow and red glasses are placed alongside to match the colour of the oil viewing through the eye piece. Colour of oil is reported in Lovibond units in lcm length cell as the sum of the yellow (Y) and red (R) slides (Sathe, 1999).

Odour: Odour of seed oil is determined by smelling (organoleptic evaluation) to evaluate unpleasant odour, if any.

Refractive index: Abbe digital refractometer (Alsterdorfer, Gernmany), Model No. AR2008, is used for measuring the refractive index value. It is previously standardised with distilled water having R.I. value 1.330 at 20^{0}C. The temperature of the refractometer is adjusted to 40^{0}C. Now a few drops of the filtered oil are placed on the clean prism and wiped excess sample. The reading is noted.

Viscosity: Viscosity of the oil is determined with Ostwald viscometer in centipoises and then expressed as Kinematic viscosity by dividing viscosity value with the specie gravity value to get the centistokes value at 25^{0}C.

Iodine Value (I.V.): Wijs' method is applied for determination of iodine value of the oil.

In a 500ml iodine flask accurately weighed 0.25 – 0.30 g sample oil by difference method. 25ml CCI, added to dissolve the oil and 25ml Wijs' solution (ICI in glacial acetic acid, 0.2M) added and mixed thoroughly. It is kept in dark for ½ hr. with occasional shaking. 10ml of 10% KI solution and 100ml of freshly boiled and cooler distilled water and mixed. The liberated iodine is titrated with 0.1M $Na_2S_2O_3$ solution using starch as indicator towards the end. A blank is run similarly with the oil sample. I.V. – 12.69 ($V_{blank} - V_{sample}$) / weight of sample. The result gives the amount (g) of I_2 absorbed by 100g of oil sample.

Acid Value (FFA): Free fatty acid content is measured by titration with 0.1N KOH solution and expressed as oleic acid equivalents. 5g of the oil sample is accurately weighed and dissolved in 50ml of neutral solvent (25ml ether + 25ml 95% alcohol + 1ml 1% alcoholic phenolphthalein solution neutralized with 0.IN KOH solution). The contents titrated with 0.1N KOH (std) solution until a pink colour persistent for 15 sec. is observed.

FFA (as oleic acid) = 56.1 x Titre value x Normality of KOH/ weight of sample (g)

Saponification Value (S.V.): Saponification value is determined by the AOCS method (AOCS, 1979). 5g oil sample is taken in a conical flask with precise measurement. 50ml alcoholic KOH solution (4%) added in a definite period of time. For a blank similar addition of KOH solution without oil sample performed separately. Both connected with air condenser and heated for 1 hr. (clear medium). Condenser washed down by distilled water, 1ml 1% phenolphthalein indicator added and titrated against 0.5N HCI until the pink colour just disappears (Sadasivam *et. al*, 1996).

S.V.= 28.05 (titre of blank – titre of sample) / wt. of sample (g).

RESULTS

The values of different Physico-chemical parameters of the seed oil are presented in

Table 1. Physico-chemical parameters of the seed oil

Yield	27 – 29% w/w
Colour (Lovibond	10 Y + 4R
Odour (Oranoleptic)	Pleasant.
Viscosity (Ostwald	480 centipoises at 26.2^0C
Refractive index (R.I)	1.4696 at 26^0C
Saponification value (S.V.)	198.905
Iodine value (I.V.) Wijs	94.505
Acid value	11.457
Non-saponifiable fraction (NSF)	1.5% w/w

CONCLUSION

Verious physical parameters of the seed oil of Basilla rubra were studied. The parameters were found to be similar to any common edible oil e.g., mustered oil.

REFERENCES

Akinpelu, D.A. and Onakoya, T. M., 2006: Antimicrobial activities of medicinal plants used in folklore remedies in south-western. African J. Biotech. 5(11). 255

Cao, Y., Hu, L., Tang, Z. and Ye, Q. 1991: Stability of natural Basella red pigment, *Chem. Abs.,* 115(862), 278382.

Ozela, E. F., Stringheta, P. C. and Chauca, M. C. 2007: *Latinamerican J. Agri.* Environ. Sci., 34(2), 55.

Adams, R. P., 2001: Identification of Essential Oil components by GC/Quadruple MS (3rd Edn), Allured Publ. Corpn. Carol Stream, Ilinois.

Appalanaidu, B. and Murty, K. S., 1963: Studies on the influence of gibberellic acid on growth habit of *Basella alba and Jasminum sambac., Andhra Agric J.* 10, 19.

Applequist, W. L. and Wallace, R. S. 2003: Expanded circumscription of Didieraceae and its division into three subfamilies, *Adansonia* 3(25), 13.

Applequist, W. L. and Wallace, R. S., 2001: Phylogeny of the Portulacaceous *cohort* based on *ndhF* sequence data, *Systenatic Botany*, 26,406.

Applequist, W.L., and Wallace, R. S., 2001: Phylogeny of the *Portulacaceous cohort* based on ndhF sequence data, *Systematic Botany*, 26, 406.

Bansal. RK., 1994: Laboratory Manual of Organic Chemistry, 3rd ed., New Age International Limited, 22 — 128,

Beheshti. S., 2005: Analysis of the essential oil of two *Thymus* sp. from Iran *Food Chemistry*, 90 (4) 609.

****