ISSN 2226-3063 e-ISSN 2227-9555
Modern Phytomorphology 16: 9–12, 2022

https://doi.org/10.5281/zenodo.200121

REVIEW ARTICLE

A review on *Skimmia laureola*

Srashti Choudhary [1], Aditi [1], Diksha Panwar [1], Neetu Sharma [2*]

[1] Department of Life Sciences and Biotechnology, Graphic Era (Deemed to be) University, Dehradun, Uttarakhand 248002, India

[2] Department of Chemistry, Graphic Era (Deemed to be) University, Dehradun, Uttarakhand 248002, India; * neetu.cherry@gmail.com

Received: 05-Dec-2021, Manuscript No.: mp-21-49234 | **Editor Assigned:** 08-Dec-2021, Pre-QC No. mp-21-49234 (PQ) | **Reviewed:** 26-Dec-2021, QC No.: mp-21-49234 (Q) | **Revised:** 27-Dec-2021, Manuscript No.: mp-21-49234 (R) | **Accepted:** 28-Dec-2021 | Published: 05-Jan-2022

Abstract

Modern requirements of agriculture require new approaches to provide the region with high-quality feed and develop new methods of their production. Therefore, solving the problem of providing animals with cheap complete grass fodder, the production of which is based on modern technologies, taking into account the existing trends of climate change, is undoubtedly relevant in this region. Medicinal Plants have been implemented for hundreds of years by peoples throughout the World. Using ordinary, plant-acquired medicines that are beneficial and healthier than prescription drugs derived from a combination of products is in high demand by users. The remedial plants are of immense significance because they are consumed as medicines. *Skimmia laureola* annual aromatic evergreen shrub belongs to the family Rutaceae, The *Skimmia laureola* suggests various measures of antibacterial activity. The warm and chilled water extract of *Skimmia laureola* manifests antibacterial activity against the microbes but not to the maximum level. Leaf and stem give necessary oils which are having various constituents. Pharmaceutical research has revealed important activity of various extracts as anti-inflammatory delegates, antimicrobial between others, carrying some of its essential uses. Medicinal plants are vitally used because they are consumed as medicines. The main objective of the current finding was to illustrate the possible activities of the plant with its distribution, morphology, chemical constituents, and medicinal uses. In this review, we will focus on antibacterial and antimalarial properties as well as *Skimmia laureola*.

Keywords: Prescription; Annual; Aromatic; Antibacterial; Pharmaceutical; Extract

Introduction

The remedial plant parts (seeds, roots, leaves, etc.) whose extracts have been used for the medical care of various contamination and diseases. These are the best inceptions to acquire different medications. About 80% of people in developed nations utilize conventional medicines, which are obtained from medicinal herbs (Ahmad, et al. 2011). In the last fifty years, plants have been appropriately examined by progressing scientific methodology and announced for different remedial effects like antitumor activity, antiseptic activity, antidiabetic activity, antioxidant activity, hepatoma activity, and anti-inflammatory activity (Shoeb, M. 2006, Lakheda, S. et al 2011).

According to WHO, herbal plants contain materials that can be used for remedial purposes or which are useful in the manufacturing of drugs (Junaid, et al. 2006).

Around 422127 plant species are growing on earth out of which nearly 35,000 to 70,000 plant varieties are used as herbal plants (Hasan, et al. 2007) from which 20,000 plant species are expected to be used therapeutically in the nation (Mukherjee, 2004).

Skimmia laureola a herbal shrub, belongs to the Rutaceae family, found in Kashmir, Himachal Pradesh, and Northern Pakistan at an elevation of 1800 m to 3000 m. The leaves are useful for pox diseases and the healing of different ailments. Generally, for the treatments of fever, headache, and cold it is used and smog from dry leaves cures the respiratory tract (Qureshi, et al. 2009).

The family Rutaceae has considerable economic

significance for its countless edible fruits and crucial oils. The genera depicted by 4 spp. i.e, S. arborescens, *S. laureola* (Candolle), *S. multinervis* and *S. anquetil*, while only *S. laureola* in western Himalaya. It is generally known as 'Nazar Panra' or 'Kedarpati' (Verma, et al.2015).

It is a dwarf (approx 2.4 m high), evergreen, scented annual bush, ground in assorted evergreen forest, at an altitude covering from 2600 m to 3000 m (Shah, et al. 2005). Many studies are accessible on the antiseptic, antimycotic, anthelmintic, antimolluscal, and anti-inflammatory effects of the plants.

The main objective of the research is to screen and estimate the antibacterial activity of *Skimmia laureola* with Chemical constituents and biological properties as well. The distribution, morphology, taxonomy, traditional uses are also illustrated in this paper.

Distribution

It mainly includes shrubs and bushes and is widespread in equatorial and moderate sectors of the nation. It is dispensed in South-East Asia, North America, India, and Australia (Perveen, et al. 2005). In India, it expands in Jammu and Kashmir, Himachal Pradesh, and Uttar Pradesh (Walters, S.M. et al. 1986, Sharma, et al. 1993). According to Kashmir University Herbarium, it is distributed in Tangmarg, Aharbal, Gulmarg, Duksum, Sonmarg, Yusmarg, Hillar nar (Sharma, et al. 1993). This plant is also broadly distributed in Kashmir, Himachal Pradesh, and Uttarakhand in the North (Hasan, et al. 2000) and Khasi, Mishmi heights in Kashmir and eastern Himalaya region. *Skimmia* is best planted in snowfall, but it is still perfectly possible to plant it in the spring season also.

In Kashmir (Chopra, et al. 1982), the family is having four genera, and 6 species (cultivated and wild) are shown in Tab. 1 (Malik, et al. 2010, Nissar, et al. 2018).

Morphology

Skimmia is one the genus of the Rutaceae family, distributed in the East, Himalayas, Philippine Islands, and Japan, and is depicted with a powerful aromatic fragrance (Nissar, et al. 2018). *Skimmia laureola* is an evergreen bush growing to 1.5 m (5ft). The leaves give an aromatic smell and seeds can be dispersed after it is ripened in a cold frame. It produces white and yellow flowers and extends into small circular berries which are oppressively scented, giving a pleasant smell (Genders, R. 1994). The berries are consumed by birds that scatter the seeds by their droppings. It also succeeds when sown in the spring tide season (Genders, S. et al. 1994). It can germinate in partially-shaded or dark places and can tolerate atmospheric pollution. The botanical explanation of *Skimmia laureola* is summarized in Tab. 2 (Nissar, et al. 2018).

Table 1. The tabular representation of family, genus and species.

Family	Genus	Species
Rutaceae	Citrus	*Citrus reticulata*
		Citrus aurantiifolia
		Citrus sinensis
	Dictamnus	*Dictamnus alba*
	Skimmia	*Skimmia arborescens*
		S. anquetilia
		S. japonica
		S. laureola
		S. melanocarpa
		S. multinervis
		S. repens
	Zanthoxylum	*Zanthoxylum armatum*

Chemical constituents

The genus (*Skimmia*) is a high origin of secondary metabolites which comprises alkaloids, coumarins, cholestane derivatives, saponins, tannins, phenolic compounds, triterpenes, seroles, flavonoids, and unusual fatty acid derivatives (Epifano, et al. 2015). Vital components of the oils are linalyl acetate, linalool, -terpinyl acetate, -terpineol, myrcene, neryl acetate, neoiso-dihydrocarveol acetate, geranyl acetate, dictamnol, and farnesyl acetate (Pandey, et al. 2014). Nevertheless, the riveting feature of these oil constituents was the existence of dictamnus (Coxygenated hydrocarbon) in higher amounts. Elements of gliding sections of *Skimmia laureola* have led to the separation of some alkaloids including ptelefolia line, acetyl ptelefolia line, acetyl edulinine, and orixiarine.

Medicinal uses

Additional detailed studies are required to ascertain its clinical applications. The leaves are used in the curing of variola and the fumes caused by flaming them can purify the surrounding air. The traditional use of the plant is that it is generally used for treating various painful conditions and pyrexia. Commonly, the leaf insertion of *S. laureola* is taken for treatment of freshness, headache, and pyrexia. The bract of *S. laureola* is fragmented and known to accommodate geraniol, beta linalool, skimmianine,

Table 2. The botanical explanation of *Skimmia laureola*.

Skimmia laureola	Habit	Evergreen, shrubs, or bush
	Leaves	Simple; alternate; glandulous-dappled and petiolate
	Inflorescence	extreme, thyrosiform
	Flower	Polyandry. Sepals 4 or 5 - 7, definite or radically cognate; petals 3 - 4 or 5 - 7, overlapped in twig; filaments 4 of 5-7, definite, elementary in female flower; disk circular or round.; Located 3-5 ovary, syncarpous, style plump or absent.
	Fruit	Portly drupaceous berry (1 - 5)
		1-seeded wrinkled Pyrenees
	Seed	Ellipsoidal to egg-shaped; seed testa discoid; abundant seeds; embryo linear; cotyledons ovoid to suborbicular, plained, and higher quality embryo

umbelliferone, and scopoletin. They are used for the treatment of rheumatism, swellings, and therapy. Powder of its bark is used the alleviate burns and injuries. Cooked leaves can be used as a herb in curries and as an additive agent in other food items because of their strong aroma. The oil of its leave can be used for giving fragrance to soap. The dehydrated leaves are used as aroma and fresh leaves are used for making garlands. The wood can be used for making small farming tools like hoes and axes. According to a literature survey that *Skimmia laureola* was found to have antibacterial activity in the Proteus mirabilis and *Salmonella typhi* at a concentration of 200 micrograms. Ampicillin, Tobramycin and Amoxicillin were used as standard drugs. In the current investigation, the antibacterial activity of *Skimmia laureola* was checked against four pathogenic bacterial strains among them two were Gram-positive such as *Staphylococcus aureus* and *Proteus mirabilis* and two were Gram-negative such as *Escherichia coli* and *Bacillus subtilis* (Halim, et al. 2015). Phytochemical studies leave extracts obtained both in cold and hot water was tested against various strains of bacteria to test their antibacterial potency Antibacterial activity was performed by agar well diffusion method (Halim, et al. 2016).

Discussion

Plants are a vital source of beneficial components for the expansion of some cancer-causing agents. *Skimmia laureola* has many beneficial positive effects on the body and is used for curing many human ailments. Many records are accessible on the antiviral, antibacterial, antifungal, anthelmintic, antimolluscal, and anti-inflammatory properties of this plant. Some of these studies have assisted in recognizing the active principle liable for such properties and in developing drugs for medical use in humans. As per the literature survey, *Skimmia laureola* was found to have antibacterial activity as well as antifungal and anti-oxidative properties too.

Conclusion

After examining physicochemical and biochemical characteristics of *S. laureola,* this native herbal plant might be suitable as a good source in upcoming review and research work concerning identification and separation of different bioactive components which are developing and demanding the need for pharmacological industries and food industries as well. The present study resolutely braces the use of leaves of *Skimmia laureola* in the regulation and management of pyrexia (fever and pain).

Acknowledgment

We are very thankful to Graphic Era University, Dehradun, Uttarakhand for giving us this opportunity to carry out our review work. We would like to express our sincere gratitude to our mentor, last but not least we would like to thank our family and friends for their support.

References

Ali M., Mahmood Z., Ahmad M., Afzal M., Munir M.A., Sharif M.N., Shakeel A. (2016). Genetic variability in Cirsium arvensei under different environmental conditions. *Bull Bio All Sci Res* **1**.

Shoeb M. (2006). Anti-cancer agents from medicinal plants. *Bangladesh J Pharmacol* **1:** 35-41. https://www.banglajol.info/index.php/BJP/article/view/486

Lakheda S., Devalia R., Jain U.K., Gupta N., Raghuwansi A.S., Patidar N. (2011). Anti-inflammatory activity of Artocarpus heterophyllus bark. *Der Pharmacia Sinica* **2:** 127-130.

Junaid S.A., Olabode A.O., Onwuliri F.C., Okwori A.E.J., Agina S.E. (2006). The antimicrobial properties of Ocimum gratissimumextracts on some selected bacterial gastrointestinal isolates. *Afr J Biotechnol* **5**. https://www.ajol.info/index.php/ajb/article/view/55982

Qureshi R.A., Ghufran M.A., Gilani S.A., Yousaf Z., Abbas G., Batool A. (2009). Indigenous medicinal plants used by local women in southern Himalayan regions of Pakistan. *Pak J Bot* **41:** 19-25. http://www.pakbs.org/pjbot/PDFs/41(1)/PJB41(1)019.pdf

Pandey V., Chauhan A., Verma R.S., Tiwari R. (2015). Chemical investigation of *Skimmia laureola* (Rutaceae) essential oil for characterization of new constituents. *J Essent Oil Bear Plants* **18:** 791-797.

Shah W.A., QURISHI M.A., Thappa R.K., Dhar K.L. (2003). Seasonal variation in the essential oil composition of *Skimmia laureola*. *Indian Perfumer* **47:** 265-268.

Perveen A., Qaiser M. (2005). Pollen Flora of Pakistan-XLV. Rutaceae. *Pak J Bot* **37:** 495.

Walters SM, Brady A, Brickell CD, Cullen J, Green PS, Lewis J, Matthews VA, Webb DA, Yeo PF, Alexander JC. (1986). The european garden flora. Volume I. Pteridophyta, gymnospermae, angiospermae-monocotyledons. https://research-scotland.ac.uk/handle/20.500.12594/6809

Sharma B.D., Balakrishna N.P., Rao R.R., Hajra P.k. (1993). Flora of India. II. Botanical Survey of India. Deep Printers, New Delhi, 117.

Pandey V., Chauhan A., Verma R.S., Tiwari, R. (2015). Chemical investigation of *Skimmia laureola* (Rutaceae) essential oil for characterization of new constituents. *J Essent Oil Bear Plants* **18:** 791-797.

Chopra R.N., Chopra I.C., Handa K.L., Kapoor L.D. (1982). Indigenous drugs of India Academic publishers. Calcutta-New Delhi, 306.

Nissar S., Neelofar M., Aabid M. R., Irshad A., Mohi-Ud-Din S., (2018). A Detailed review on morphotaxonomy and chemoprofiling of Skimmia anquetilia, *Acta Sci Microbiol* **1:** 56-60.

Malik A.H., Khuroo A.A., Dar G.H., Khan Z.S. (2010). The woody flora of Jammu and Kashmir State, India. *J Econ Taxon Bot* **34:** 274-297.

Nissar S., Majid N., Rather A.M., Nawchoo1 I., Mohi-Ud-Din GG., (2008). A detailed review on morphotaxonomy and chemoprofiling of Skimmia anquetilia. *J Econ Taxon Bot* **34:** 274-297.

Genders R. (1994). Scented flora of the world.

Dendrological Plant Image Gallery (2004). Royal Botanic Garden Edinburgh (Scotland). https://dendroimage.de//3026.htm

Medicinal herbs. *Skimmia laureola*. https://www.naturalmedicinalherbs.net/herbs/s/skimmia-laureola.php

Epifano F., Fiorito S., Genovese S., Granica S., Vitalini S., Zidorn C. (2015). Phytochemistry of the genus Skimmia (Rutaceae). *Phytochemistry* **115:** 27-43. https://doi.org/10.1016/j.phytochem.2015.02.014.

Pandey V., Chauhan A, Verma R. S., Tiwari R., (2014). Chemical

investigation of *Skimmia laureola* (Rutaceae) essential oil for characterization of new constituents. *J Essent Oil Bear Plants* **18:** 791-797. https://doi/abs/10.1080/0972060X.2014.886964

Useful Temperate Plants. *Skimmia laureola*. http://temperate.theferns.info/plant/Skimmia+laureola

West-Himalayan Skimmia. http://temperate.theferns.info/plant/Skimmia+laureola

Zeb M.A., Halim A., Ullah S., Ullah N., Khan S.U., Salahuddin M., Rashid M. (2015). Antibacterial Activity of *Skimmia Laureola*. *Int J Life-Sci Sci Res* **1:** 33-36.

Zeb M.A., Halim A., Sajid M., Khattak K.F., Rahman T.U., Khan S.U., Ullah, S. (2016). Antibacterial activity of aqueous extracts of *Skimmia laureola*. *Adv Phar Ethnomed* **3:** 19-22. https://nexusacademicpublishers.com/uploads/files/APE_3_1_19-22.pdf