



Traditional uses of Asteraceous plants among *Buksa* tribe for skin disorders in Udham Singh Nagar, Uttarakhand, India

Sheetal Sharma* and Sneh Lata

*Department of Botany, R.H. Govt. P.G. College, Kashipur, Udham Singh Nagar, Uttarakhand – 244 713, India

*sharmasheetal9211@gmail.com

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Abstract

The present paper deals with traditional uses of asteraceous plants among *Buksa* tribe for skin disorders. The study was conducted during 2017-20 in Udham Singh Nagar district of Uttarakhand. *Buksa*, the second largest tribe in this district is mainly concentrated in Kashipur, Bazpur, Gadarpur and Rudrapur. During field work, it was observed that a total of 13 plant species belonging to 11 genera and 06 tribes of this family are being used by *Buksa* people for various skin ailments such as cuts and wounds, burns, fungal infections, boils and pustules, pus oozing, etc. It was concluded that *Eclipta prostrata* (L.) L. is the most prominently used plant species followed by *Ageratum houstonianum* Mill. and *Tagetes erecta* L. The paper also reveals some lesser known uses of these three plants.

Keywords: Asteraceae, *Buksa* tribe, Skin disorders, Udham Singh Nagar

1. Introduction

Asteraceae Berchtold & Presl. (Compositae Giseke nom. alt.) commonly called daisy, sunflower or thistle family, is well known for its advanced and special taxonomic characteristics, i.e., flower head is composed of minute flowers called florets, surrounded by bracts. It is worldwide in distribution and exhibits various habit and habitats. It is well known for medicine, food, fodder and other purposes. It plays an important role in the treatment of dermatological problems. Various species of asteraceae, e.g., *Calendula*, *Helianthus*, *Taraxacum*, etc., are commercially used in skin ailments. The family has great ethnomedicinal value throughout the world. Several workers (Heinrich *et al.*, 1998; Jan *et al.*, 2009; Bisht and Purohit, 2010; Hurrell and Puentes, 2013; Rahman, 2013; Lakshman *et al.*, 2014; Suntar, 2014; Dar *et al.*, 2015; Roy and Kanungo, 2016) have reported various medicinal uses of asteraceous plants. Achika *et al.* (2014) have reviewed on the phytoconstituents and related medicinal properties of plants in the asteraceae family.

Uttarakhand is a reservoir of rich plant diversity, tribal population and consequently ethnobotanical heritage. The state represents 4800 taxa of flowering plants belonging to 1400 genera of 215 families. Among dicots, asteraceae has the largest number of genera, i.e., 134 genera belonging to 370 species (Pusalkar and Srivastava, 2018). The state is inhabited by 291903 tribal people (Census, 2011) including five scheduled tribes *viz.* Tharu, *Buksa*, Bhotia, Jaunsari and Raji. The main concentration of tribal population is in the rural areas. As per records, 94.50% of tribal population resides in rural areas and the remaining ones live in urban centers of Uttarakhand (Farswan, 2017). The study area, Udham Singh Nagar is one of the 13 districts of the state lies in the Tarai belt where *Tharu* and *Buksa* are the main tribes inhabiting this area. The present study is based on *Buksa* tribe and their traditional phytotherapy. They have vast and unique indigenous knowledge about traditional phytotherapy and earn their livelihood mainly from animal husbandry

and agriculture. Due to various agricultural activities and sometimes unhygienic conditions, they suffer from various common skin problems.

Epidermis and dermis, the twin layers of skin play an important role in protection against microbial activity. Some of these skin injuries may lead to tetanus and even HIV. So the instant care of skin is utmost important for better health care otherwise it can lead to terrible diseases. Asteraceous plants have been reported for medicinal properties in skin care. Several authors have reported various asteraceous plants along with other plants used for the treatment of dermatological problems (Pandey *et al.*, 2012; Sharma *et al.*, 2013; Sharma *et al.*, 2014). As asteraceae represents the largest dicot family in Uttarakhand, there is little information in medicinal perspective (Bisht and Purohit, 2010). Due to modernization and urbanization, the unique and valuable traditional knowledge of local tribal people is depleting day by day. Therefore, an attempt has been made to record valuable traditional knowledge of *Buksa* tribe on medicinal uses of Asteraceous plants.

2. Materials and methods

Present study was carried out in the district Udham Singh Nagar which lies in Tarai belt of Kumaun region, Uttarakhand. Occupying an area of 3055 km², it is located between 28° 53' N to 29° 23' N Latitude and 78° 45' E to 80° 08' E Longitudes at the elevation of 214 m. The district is regarded as 'Gateway of Kumaon' and comprises seven tehsils *viz.* Jaspur, Kashipur, Bazpur, Gadarpur, Kiccha, Sitarganj and Khatima (Fig.1). The study area is the home to many tribal communities. *Buksa* is the second largest tribe with 27609 members (Census, 2011) which accounts 22.43% of total schedule tribe of the study area. *Buksa* is mainly concentrated in Bazpur, Kashipur, Gadarpur and Rudrapur and the area with rich *Buksa* people is known

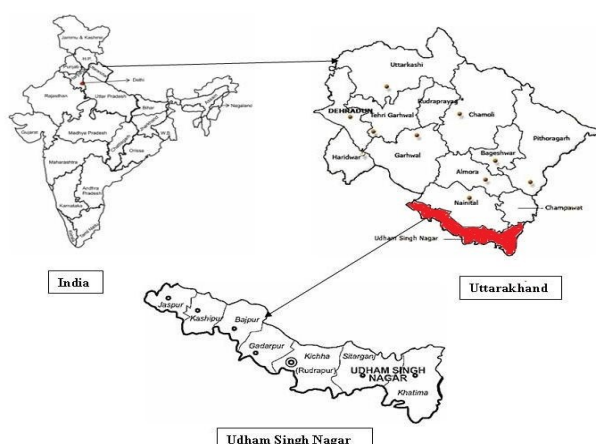


Fig. 1. Location of study area

as *Buxoid*. Local people generally refer to it as 'Buxar' or 'Buxad'.

The present study was conducted for three years (2017-2020). Extensive and intensive field work was carried out regularly in different seasons for plant collection and spot interviews. During field work, field notes, habit, habitat, locality, altitude, local name, flower colour and odour, etc. were recorded in a field book. Questionnaire was prepared following Jain and Mudgal (1999).

Asteraceous plants were collected and identified with the help of reputed floras (Duthie, 1902-1929; Osmaston, 1927; Kanjilal, 1928; Gupta, 1968; Babu, 1977; Raizada, 1976; Pant, 1986; Hajra *et al.*, 1995 a & b; Gaur, 1999; Uniyal *et al.*, 2007) and were compared with herbarium specimens of BSD (BSI Dehradun) and DD (FRI Dehradun) institutions. Plant specimens were processed for herbarium preparation following Jain and Rao (1977) and deposited in department of botany, R.H. Govt. P.G. College Kashipur, Udham Singh Nagar, Uttarakhand. Plant specimens were also preserved in alcohol and formalin for interview. With the help of literature and discussion with local people, *Buksa* families were located and chalked out in the study area. Frequent field visits were organized to record proper data on skin disease curing plants of asteraceae among different age group of *Buksa* people. The gathered information was also cross checked with other *Buksa* families. Name of the informant along with age, gender and occupation was also recorded. By regular communication with *Buksa* people, effects of plant parts were also observed for proper authentication (Plate 1).



Plate 1. a-b *Buksa* women working for their livelihood; c-d Interview with *Buksa* people

3. Results and discussion

Skin is a covering layer of body which provides protection from microbial infections. If a serious skin disorders persist for a long time it may lead various severe diseases which may even prove fatal. Asteraceous plants are commonly used by local and tribal people to cure various skin diseases. Present study focus at the use of asteraceous plants by *Buksa* tribe for skin diseases. Several authors have also reported asteraceous plants along with other plants to be used for skin disorders in different regions (Jyothi *et al.*, 2010; Solanki, 2011; Kumar *et al.*, 2013; Malik *et al.*, 2019). Similarly in Uttarakhand, Pandey *et al.* (2012) and Sharma *et al.* (2013) have reported three plants and Sharma *et al.* (2014) have recorded four plants along with plants of other families.

As a result of extensive and intensive field work, interviews and plant collection, a sum total of 13 plants species belonging to 11 genera and 06 tribes were collected (Plate 2).

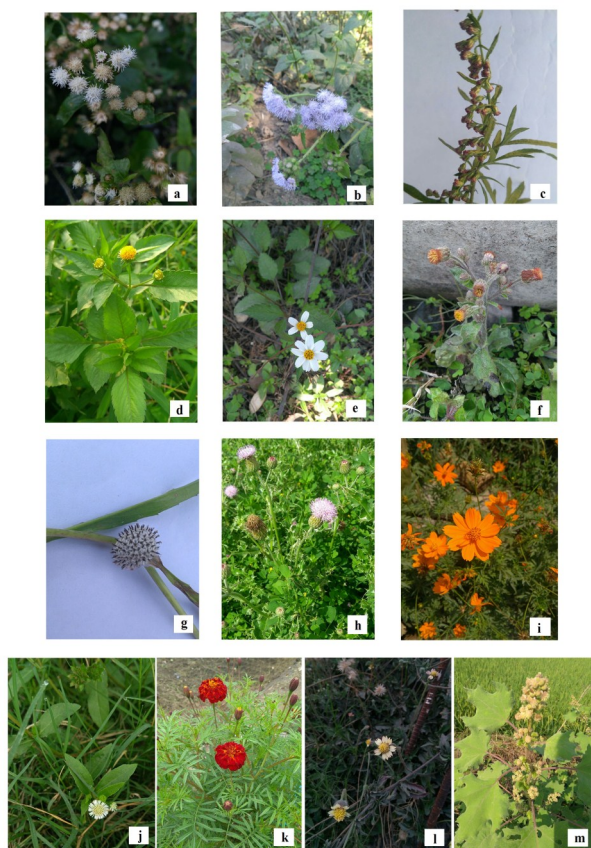


Plate 2. a. *Ageratum conyzoides* (L.) L.; b. *Ageratum houstonianum* Mill.; c. *Artemisia nilagirica* (C.B. Clarke) Pamp.; d. *Bidens biternata* (Lour.) Merr. & Sherff; e. *Bidens pilosa* L.; f. *Blumea lacera* (Burm. f.) DC.; g. *Caesulia axillaris* Roxb.; h. *Cirsium arvense* (L.) Scop.; i. *Cosmos sulphureus* Cav.; j. *Eclipta prostrata* (L.) L.; k. *Tagetes erecta* L.; l. *Tridax procumbens* (L.) L.; m. *Xanthium strumarium* L.

Table 1 exhibits a list of 13 plants with their botanical name, tribe, local name, habit, parts of plants used and method of usage, etc. Out of these, 11 plants species were wild and 02 were found as cultivated species. These plants are used for various skin diseases e.g., cuts and wounds, burns, fungal infection, boils and pustules, pus oozing, etc. (Fig. 2). Maximum numbers of plants (09) are used for cuts and wounds, followed by 03 plants for fungal infections, 03 plants for boils and pustules, 02 plants for burns, 01 plant for pus oozing. In 76.92% cases, leaves are used for skin disorders followed by flowers (15.38%), fruits and whole plant (each one, 7.69%) (Fig. 3).

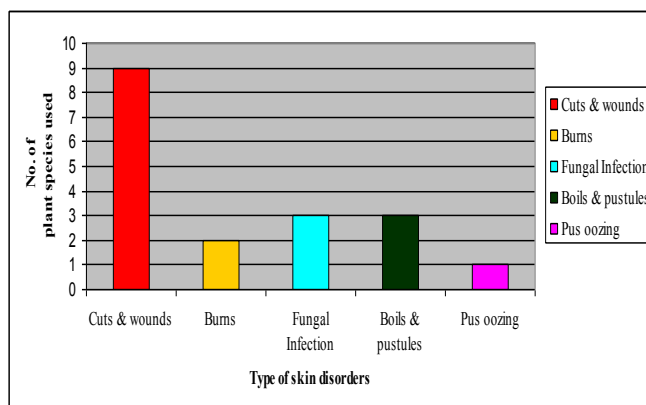


Fig. 2. Asteraceous plants used in various skin disorders

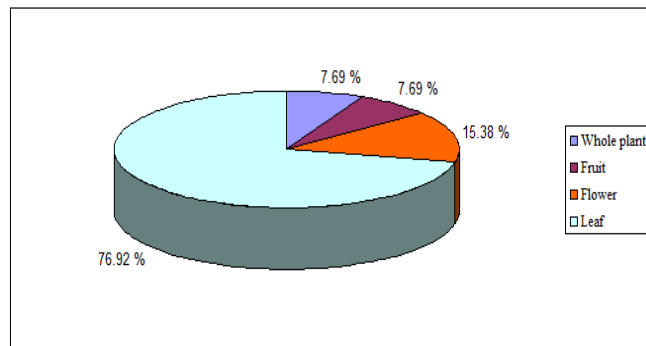


Fig. 3. Asteraceous plant parts used in different disorders

While analyzing and comparing the collected ethnomedicinal data, it was also found that several plant species have new ethnomedicinal information, e.g. *Cosmos sulphureus* Cav. in earache (due to fungal infection) *Tagetes erecta* L. for boils in nostrils and *Cirsium arvense* (L.) Scop. for boil and pustules. During the field study, it was also noted that *Eclipta prostrata* (L.) L., *Tagetes erecta* L. and *Ageratum houstonianum* Mill. are most widely used species. People prefer to grow or cultivate *Tagetes erecta* L. and *Cosmos sulphureus* Cav. in their own garden for various medicinal uses.

Table 1. Asteraceous plant species and their traditional uses

Sl. No.	Botanical name	Local name	Tribe	Habit	Distribution	Part used*	Method of usage
1	<i>Ageratum conyzoides</i> (L.) L. (C. N. 219)	<i>Phooji</i> <i>Ghass</i>	Eupatoriaceae	Herb	Wild	Lf	Leaves are washed properly and its paste is applied on burn skin and juice of leaves is applied on open wound to prevent bleeding or to enhance blood clotting.
2	<i>Ageratum houstonianum</i> Mill. (C. N. 216)	<i>Fuhwari</i>	Eupatoriaceae	Herb	Wild	Lf	Fresh juice of leaves is applied on the open cuts and wounds to prevent bleeding.
3	<i>Artemisia nilagirica</i> (C.B. Clarke) Pamp. (C. N. 249)	—	Anthemideae	Shrub	Wild	Lf	Juice of fresh washed leaves is applied regularly on the cuts and wounds till healing.
4	<i>Bidens biternata</i> (Lour.) Merr. & Sherff (C. N. 233)	—	Heliantheae	Herb	Wild	Lf	Fresh Juice of leaves is applied on open wound to prevent bleeding for 7 days.
5	<i>Bidens pilosa</i> L. (C. N. 217)	<i>Sarware</i>	Heliantheae	Herb	Wild	Lf	Paste of fresh washed leaves is applied on open wound for blood clotting.

6	<i>Blumea lacera</i> (Burm. f.) DC. (C. N. 213)	<i>Kakronda</i>	Inuleae	Herb	Wild	Lf	Leaves are washed properly and fresh juices of leaves are applied on wound till one week to cure it.
7	<i>Caesulia axillaris</i> Roxb. (C. N. 266)	—	Inuleae	Herb	Wild	FH	Fresh juice of flower head is used to wash cut and wounds and its paste is applied on wound for proper healing till 3-5 days.
8	<i>Cirsium arvense</i> (L.) Scop. (C. N. 252)	<i>Kateela</i>	Cardueae	Herb	Wild	Lf	Fresh washed leaf paste is applied on boils and pimple (pustule) for 2-3 days.
9	<i>Cosmos sulphureus</i> Cav. (C.N. 223)	<i>Tattaya phool</i>	Heliantheae	Herb	Common	Lf	2-3 drops of fresh leaves extract are used in earache due to fungal infection in ear. It is used twice in a day for 3 days regularly.
10	<i>Eclipta prostrata</i> (L.) L. (C. N. 264)	<i>Bhangara</i>	Heliantheae	Herb	Wild	WP	Plants are washed properly to remove contamination and paste of whole plant is applied on rashes on hands due to fungal infection in rainy season and also applied to remove dandruff from hairs. Paste of leaves is applied on sores, burns and cuts.
11	<i>Tagetes erecta</i> L. (C. N. 234)	<i>Genda</i>	Tageteae	Herb	Common	Lf & Fl	Leaves are washed properly and 2-3 drops of fresh juice of leaves are used at every night for 3 days to cure pus oozing of ear and earache due to fungal infection. Ray florets are crushed to smell or sniff 2-3 times to cure boils in nose.
12	<i>Tridax procumbens</i> (L.) L. (C. N. 201)	<i>Mundi</i>	Heliantheae	Herb	Wild	Lf	Juice or extract of leaves is applied on boils for 5-7 days.
13	<i>Xanthium strumarium</i> L. (C.N. 203)	<i>Aam Kateela</i>	Heliantheae	Herb	Wild	Fr	Fresh washed fruits are crushed properly and paste of these fruits is applied on cuts and wounds for 2-3 days for preventing bacterial infection.

*C. N.: Collection number; H: Herb; S: Shrub; Lf: Leaf; FH: Flower head; WP: Whole plant; Fl: Flower; Fr: Fruit

4. Conclusion

For curing various skin problems, *Buxa* people depend upon several asteraceous plant species which can be proved new for scientific study. In rural areas, traditional practices are still persisting but due to urbanization and various prevailing medical facilities in rural areas, tribal people are also adopting modern therapeutic methods and forgetting their traditional medical practices. There is urgent need to conserve their ancestral knowledge for future generation. This study will be helpful for future phytochemical study as well as scientific validation and commercial utilization for effective use in the treatment of skin ailments and also be helpful for conservation of precious plant based traditional knowledge for future generation. During the present study it was concluded that a total of 13 plant species belonging to 11 genera and 06 tribes were most widely used in different skin ailments such as cuts, wounds, burns, fungal infection, boils and pustules, etc. Analysis of collected data reveals some less known uses of *Cosmos sulphureus* Cav. in earache (due to fungal infection), and *Tagetes erecta* L. for boils in nostrils and *Cirsium arvense* (L.) Scop. for boils and pustules and they are new record to scientific society.

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References

Achika J I, Ebuka A D, Igelige G and Adebisi A 2014. A review on the phytoconstituents and related medicinal properties of plants in the asteraceae family. *IOSR J. App. Chem.* 7(8): Ver. I: 1-8.

Babu C R 1977. *Herbaceous Flora of Dehradun*. CSIR, New Delhi.

Bisht B K and Vineet Purohit 2010. Medicinal and aromatic plants diversity of asteraceae in Uttarakhand. *Nat. Sci.* 8(3): 121-128.

Dar N, Jyotsana Sharma and Yash Pal S 2015. Medicinal plants of family asteraceae used by *Gujjar Bakerwal* community in district Rajouri Jammu and Kashmir India. *Med. Plants- Int. J. Phytomed. Relat. Ind.* 7(1): 20-29.

Duthie J F 1903-1929. *Flora of the upper gangetic plain and of the adjacent Siwalik and Sub Himalayan tracts*. Bishen Singh Mahendra Pal Singh, Dehradun.

Singh E D 2017. Tribes in Uttarakhand: status and diversity. *Int. J.*

Multidiscip. Res. Dev. 4(1):89-93.

Gaur R D 1999. *Flora of the district Garhwal, North West Himalaya with ethnobotanical notes*. Trans Media Srinagar (Garhwal).

Gupta, R K 1968. *Flora Nainitalensis*. Navyug Traders, New Delhi.

Hajra P K, Rao R R, Singh D K and Uniyal B P 1995 a. *Flora of India (anthemideae-heliantheae)*. Botanical Survey of India, Calcutta. Vol. 12. pp 1-454.

Hajra P K, Rao R R, Singh D K and Uniyal B P 1995 b. *Flora of India (inuleae-vernonieae)*. Botanical Survey of India, Calcutta. Vol. 13. pp 1-411.

Heinrich Michael, Robles Mario, West Jan E, Montellano Bernardo R Ortiz de and Rodriguez Eloy 1998. *Ethnopharmacology of Mexican asteraceae (compositae)*. *Annu. Rev. Pharmacol. Toxicol.* 38: 539-565.

Hurrell Julio Alberto and Puentes Jeremias Pedro 2013. Medicinal and aromatic species of asteraceae commercialized in the conurbation Buenos Aires- La Plata (Argentina). *Ethnobiol. Conserv.* 2:7, 1-40.

Jain S K and Mudgal V 1999. *A Hand Book of Ethnobotany*. Bishen Singh Mahendra Pal Singh, Dehradun, India.

Jain S K and Rao R R 1977. *A Hand book of field and Herbarium Methods*. Today and Tomorrow's Printers and Publishers, New Delhi.

Jan, Gul Khan Mir Ajab and Jan Farzana 2009. Medicinal value of the asteraceae of Dir Kohistan Valley, NWFP, Pakistan. *Ethnobot. leafl.* 13:1205-15.

Jyothi B, Sudarsanam G, Sitaram Bulusu, Babu G Prasada and Yasodamma N. 2010. Ethnobotanical survey of medicinal plants used in the treatment of dermatogenic diseases in Chittoor District, Andhra Pradesh, India. *Ethnobot. leafl.* 14:511-17.

Kanjilal, U N 1928. *Forest Flora of the Chakrata*. Dehradun and Sahranpur Forest Division, United Provinces. Calcutta.

Kumar Akhilesh, Pandey Vimal Chandra, Singh Anant Gopal, Tewari Divya Darshan 2013. Traditional uses of medicinal plants for dermatological healthcare management practices by the *Tharu* tribal community of Uttar Pradesh, India. *Genet Resour. Crop. Evol.* 60:203-224.

Lakshman, H C, Yeasmin Tanzima and Gabriel K P 2014. Herbs of asteraceae and their ethnobotanical uses in dermatological problems. *J. bio-sci.* 22: 127-129.

Malik Khafsa, Ahmed Mushtaq, Zafar Muhammad, Ullah Raiz, Mahmood Hafiz Majid, Parveen Bushra, Rashid Neelam, Sultana Shazia, Shah Sayed Nasar and Lubna 2019. An Ethnobotanical study of medicinal plants used to treat skin diseases in Northern Pakistan. *BMC Complement. Altern. Med.* 19:210, 1-38.

Osmaston A E 1927. *A Forest Flora for Kumaun*. Bishen Singh Mahendra Pal Singh, Dehradun.

Pandey Garima, Verma Krishan Kumar, Kumar Sanjay and Singh Munna 2012. Traditional phytotherapy of some medicinal plants used by *Tharu* and *Buxa* tribes of Uttarakhand used in Skin Diseases. *Int. J. Med. Plant Res.* 1(5): 055-057.

Pant P C 1986. *Flora of Corbett National Park*. Botanical Survey of India, Howrah.

Traditional uses of Asteraceous plants among Buksa tribe for skin disorders

- Pusalkar, Prashant K and Srivastava S K 2018. Flora of Uttarakhand. Botanical Survey of India. Vol.1. pp. 1-1099.
- Rahman A and H M Mahbubur 2013. An ethnobotanical investigation on asteraceae family at Rajshahi, Bangladesh. JBAMSR. 2(5):133-141.
- Raizada M B 1976. Supplement to Duthie's Flora of Upper Gangatic Plain and of the adjacent Siwalik and Sub-Himalayan tracts. Bishen Singh & Mahendra Pal Singh, Dehradun.
- Roy Deepshikha and Kanungo V K 2016. Common medicinal herbs of family asteraceae Raipur district of Chhattisgarh, India. Indian J. Applied & Pure Bio. 31(2):177-180.
- Sharma Jyotsana, Gairola Suneet, Sharma Yash Pal, Gaur R D 2014. Ethnomedicinal plants used to treat skin diseases by *Tharu* community of district Udham Singh Nagar Uttarakhand India. J. Ethnopharmacol. 158:140-206.
- Sharma Jyotsana, Gaur R D, Gairola Suneet, Painuli R M and Siddiqui T O 2013. Traditional herbal medicines used for the treatment of skin disorders by the *Gujjar* tribe of Sub- Himalayan tract, Uttarakhand. IJTK. 12(4):736-746.
- Solanki Renu 2011. Treatment of skin diseases through medicinal plants in different regions of the world. Int. J. Biomed. Res. 2(1):73-80.
- Suntar Ipek 2014. The medicinal value of asteraceae family plants in terms of wound healing activity. J. Pharm. Sci. 39: 21-31.
- Uniyal B P, Sharma, J R, Choudhery U and Singh D K 2007. Flowering Plants of Uttarakhand. (A Checklist) Bishen Singh Mahendra Pal Singh, Dehradun. pp 1-307.