

Use of dye yielding plants by the tribal Tea Garden workers in Terai and Hills of Darjiling

Chandrâ Ghosh and A. P. Das¹

Taxonomy & Environmental Biology Laboratory, Department of Botany, North Bengal University, Darjiling
734013, West Bengal, India

[¹Corresponding author] E-mails: amichandra07@gmail.com; apdas.nbu@gmail.com

Abstract

Ethnobotanical survey among the Tea Garden workers in hills and Terai in Darjiling District of West Bengal, India recorded the use of 12 angiosperms [*Acacia catechu*, *Bauhinia purpurea*, *Clerodendrum serratum*, *Curcuma longa*, *Deeringia amaranthoides*, *Mahonia napaulensis*, *Mallotus philippensis*, *Morinda angustifolia*, *Rubia manjith*, *Tagetes patula*, *Terminalia bellirica* and *Toddalia asiatica*] as sources of dyes for their various types of domestic uses.

Keywords: Darjiling, Terai, Tribals, Plant dye

INTRODUCTION

For its extremely rich biodiversity, IUCN has recognised India as one of the 17 megadiversity countries of world, with its estimated 17, 500 species of higher plants. But, mainly due to endless anthropogenic activities, the country is loosing its biodiversity almost at every moment. Recently forest survey of India reported only 19% forest covered area in India, only 11% forest covered area in West Bengal and in case of Darjeeling condition is slightly better only 70% area are forest covered (FSI 2001).

Hills of Darjeeling are located almost in the central part of Eastern Himalaya and around 30% species of higher plants are endemic in this region (Grierson & Long 1983; Das 1995, 2004; Bhujel & Das 2002). Extremely rich floristic diversity of Darjeeling is well known to us [Das 1986, 1995, 1996, 2002, 2004, 2005; Das & Chanda 1987; Bhujel & Das 2002; Das *et al* 2003]. This type of rich vegetation is not restricted only in the hill region, different types of vegetation of Terai and Duars are also equally rich.

Besides its rich biodiversity, Darjeeling TEA is worldwide famous for its aroma. So after the discovery of favourable climatic conditions, tea gardens were started establishing in rapid succession after the removal of natural vegetation cover over wide areas in hills and Terai of Darjiling and in adjacent Duars during the later part of 19th century. Now tea becomes one of the three major economic backbones (Tea, Timber & Tourism) for the people of this northernmost part of West Bengal.

In the 19th century the local human population in these areas were very low and the required large workforce for running Tea Gardens was not available there. So, the work force i.e. numerous tribal people were brought from the Chhota Nagpur and Santhal Paraganas from Bihar/ Jharkhand and from the western districts like Medinipur, Purulia and Bankura from West Bengal as tea garden workers.

So, a good proportion of Tea Garden workers are tribal people mainly Santhals, Oraons, Mundas, Rajbansi, Nepalee and Bhutia communities, etc. in this district. These tough but poor people are habituated to live in remote areas where civic amenities are almost absent and are much dependent on the local resources for their survival and maintaining a large number of their traditional practices.

Dye or Colour is one important ingredient in our lifestyle. The charm or acceptability of an article is much dependent on the colour added to it.

During recent ethnobotanical survey among the Tea Garden workers in hills and Terai of Darjiling it is found that natural dye is also important in their lifestyle. Rai & Bhujel (2007) recorded 20 dye yielding plants from their ethnobotanical survey among different tribal communities in Darjiling district.

METHODOLOGY

Ethnobotanical investigation was made in seven Tea Garden in Hills and Terai region of Darjeeling district during 2002-2004. of these (1) Kamalpur T E: 26° 42.341' N Lat & 88° 18.428' E Long; ±154 m (2) Hansqua T E: 26° 37.784' N Lat & 88° 19.068' E Long; ±125 m (3) Matigara T E: 26° 42' 500" N Lat & 88° 22' 142" E Long; ±130 m (4) Mohurgong & Gulma T E: 26° 47.203' N Lat & 88° 22.866' E Long; ±154 m are from Terai and three gardens from hills are (5) Makaibari T E: 26° 62' 59" N Lat & 88° 16' 43" E Long; ± 1100 m (6) Tamsong T E: 27° 04. 590' N Lat & 88° 13. 723' E Long; ±1200 m (7) Soom T E: 27°02.31' N Lat & 88°09.992' E Long; ±1300 m. Quite a wide range of ethnobotanical information was recorded from the resourceful persons with the help of local field guides and /or contact persons in the worker colonies and also from nearby villages and senior rural folks of different ethnic communities. Collected voucher specimens are deposited in the NBU-Herbarium. The present article is presenting the knowledge on dye yielding plants of these Tea Garden workers.

OBSERVATION AND DISCUSSION

Dye is required for different purposes in our daily life like for colouring cloth, for ceremonies, for food, for cosmetics, for medicines etc. The preference for the use of natural dye is always there in the traditional society and at the same time, the demand is increasing in the civilised and developed international market. People of Darjiling hills and Terai use some plants for the extraction of dye. The present survey has recorded the use of twelve species of plants for this purpose which is presented bellow:

Acacia catechu (L.f) Willdenow [Mimosaceae]: LN: *Khayer* (Beng, Nep)

Specimen Cited: Hansqua TE, **AP Das & Chandrâ 1492**, dated 20.10.2002.

Knowledge Source: Hansqua and Makaibari Tea Estates [Nepalese].

Use: A pale brown dye from stem used for colouring traditional hand made papers and a deep brown extract is mix with soil to colour the walls of houses.

Bauhinia purpurea L. [Caesalpinaceae] LN: *Rakta Kanchan* (Beng), *Taki* (Nep)

Specimen Cited: Makaibari TE, **AP Das & Chandrâ 1867**, dated 16.06. 2003 ; Tamsong TE, **AP Das & Chandrâ 2928**, dated 10.04. 2004

Knowledge Source: Makaibari and Tamsong Tea Estates [Nepalese].

Use: A green dye is extracted from stem-bark used generally for tanning.

Clerodendrum serratum (L.) Moon [Verbenaceae] LN: *Andekhi* (Nep)

Specimen Cited: Mohurgong & Gulma TE, **AP Das & Chandrâ 1524**, dated 22.10.2002.

Knowledge Source: Makaibari and Mohurgong & Gulma Tea Estates [Oraons, Santals]

Use: Fruits yield a purple dye that is used for colouring local hand made papers.

Curcuma longa L. [Zingiberaceae] LN: *Halud*, *Haldi* (Beng), *Hardi* (Nep)

Specimen Cited: Tumsong TE **AP Das & Chandrâ 2095**, dated 04.7.2003; Kamalpur TE **AP Das & Chandrâ 1308**, dated 18.10.2002.

Knowledge Source: All the seven Tea Estates under survey [Nepalese, Oraons, Santals].

Use: Powdered the rhizome is added to the food articles for colouring yellow. Extracted yellow dye is used also in traditionally made woollen garments and papers. During religious ceremonies it is used for yellowing cloths and other articles.

Deeringia amaranthoides (Lamarck) Merrill [Amaranthaceae] LN: *Bakri sag* (Nep); *Chhorachhunri Sag* (Oraon)

Specimen Cited: Hansqua TE, **AP Das & Chandrâ 1422**, dated 20.10.2002.

Knowledge Source: Hansqua and Makaibari Tea Estates [Nepalese, Oraons].

Use: A red or pink colour produced from young leaves is used is used in local hand made papers.

Mahonia napaulensis DC. [Berberidaceae] LN: *Chuttro/ Keshari* (Nep)

Specimen Cited: Tumsong TE ***AP Das & Chandrâ 3012***, dated 10.04. 2004.

Knowledge Source: Tumsong and Soom Tea Estates [Nepalese].

Use: Stem bark yields yellow dye used for colouring traditional hand made papers. The mature fruits also yield dark blue dye and used for the same purpose.

Mallotus philippensis (Lamarck) Mueller [Euphorbiaceae] LN: *Sindure* (Nep)

Specimen Cited: Mohurgong & Gulma TE, ***AP Das & Chandrâ 1549***, dated 22.10. 2002; Kamalpur TE, ***AP Das & Chandrâ 0560***, dated 17.04.2002

Knowledge Source: Mohurgong & Gulma, Makaibari and Tumsong Tea Estates [Nepalese].

Use: Mature fruits yield granular red powder and is used as vermilion or *sindoor* on the forehead by married women (as symbolic to her marital status).

Morinda angustifolia Roxburgh [Rubiaceae] LN: *Hardi kath* (Nep)

Specimen Cited: Mohurgong & Gulma TE, ***AP Das & Chandrâ 1508***, dated 22.10. 2002; Hansqua TE, ***AP Das & Chandrâ 0983***, dated 09.05.2002

Knowledge Source: Mohurgong & Gulma and Hansqua Tea Estates [Nepalese, Oraons].

Use: Root and stem barks yield yellow dye, which is extensively used for colouring traditional hand made papers.

Rubia manjith Roxburgh ex Fleming [Rubiaceae] LN: *Majito* (Nep), *Manjistha* (Sanskrit)

Specimen Cited: Tamsong TE, ***AP Das & Chandrâ 3026***, dated 10.04. 2004; Soom TE, ***AP Das & Chandrâ 3505***, dated 12.10.2004

Knowledge Source: All three hill Tea Estates [Nepalese].

Use: Mature fruits yield blue/ purple dye and young shoots and stems yield greenish yellow dye, both are used extensively for colouring traditional hand made papers.

Tagetes patula L. [Asteraceae] Fn: 0287; LN: *Gnada* (Beng), *Sayapatri* (Nep)

Specimen Cited: Makaibari TE, ***AP Das & Chandrâ 2542***, dated 11.11.2003.

Knowledge Source: Makaibari Tea Estate [Nepalese, Oraons].

Use: Yellow dye extracted from corolla yields used in local hand made papers.

Terminalia bellirica (Gaertner) Roxburgh [Combretaceae] LN: *Baherha* (Beng), *Barrha* (Nep)

Specimen Cited: Kamalpur TE, ***AP Das & Chandrâ 1347***, dated 18.10.2002

Knowledge Source: Kamalpur, Mohurgong & Gulma and Hansqua Tea Estates [Nepalese, Oraons].

Use: Bark and fruits yield a blackish brown dye that is used for dying hair.

Toddalia asiatica (L.) Lamarck [Rutaceae] LN: *Singane kanra* (Nep)

Specimen Cited: Makaibari TE, ***AP Das & Chandrâ 2785***, dated 25.03. 2004

Knowledge Source: Makaibari Tea Estate [Nepalese].

Use: A yellow dye extracted from roots yield commonly used for colouring local hand made papers.

Among these twelve dye-yielding plants there are four each for trees and shrubs, two climbers and one each for geophytic herb and annual herb. Of these, *Curcuma longa* is largely exploited not only for its dye yielding property but also for its spice and medicinal properties. *Tagetes patula* is widely grown as ornamental for its flowers and are not grown for dye yielding purpose only; *Rubia manjith* is also commercially exploited from natural habitat for its dye content and medicinal properties. Apart from these, plants like *Acacia catechu*, *Bauhinia purpurea*, *Mallotus philippensis* and *Terminalia bellirica* are also grown or planted for some different reason and are secondarily exploited for procuring dye. On the other hand plants like *Clerodendrum serratum*, *Deeringia amaranthoides*, *Mahonia napaulensis*, *Morinda angustifolia* and *Toddalia asiatica* are also exploited from the wild and their dye is used only for traditional purposes.

Of these, the demand for *Rubia manjith* is greatly increased in national and international market, especially in the cosmetic industry. So, proper attention need to be given for its conservation.

LITERATURE CITED

- Das, A.P. 1995. Diversity of the angiospermic flora of Darjeeling Hills. In *Taxonomy and Biodiversity*, ed. A.K. Pandey. 118 - 127. CBS, New Delhi.
- Das, A.P. 2002: Survey of naturalised exotics in the flora of Darjiling Hills, West Bengal, (India). *J. Econ. Tax. Bot.*, 26(1): 31 – 37.
- Das, A.P. 2004. Floristic studies in Darjiling hills. *Bull. Bot. Surv. India* 43(1-4): 1 – 18.
- Das, A. P. 2005. Importance of the Floras of Hills, Terai and Duars of Darjiling. *Nat. Conf. Curr. Res. Pl. & Microb. Sci.*, Burdwan Univ., Nov. 26 – 27. P: 27.
- Das, A.P. & Chanda, S. 1987. Flowering calendar of the angiospermic flora of Darjeeling Hills, West Bengal (India). *Trans. Bose Res. Inst.* 51(4): 99 - 133.
- Das, A.P.; Rai, U.; Sharma, B.D.; Ghosh, C. & Nirola, S. 2003. Flora and Vegetation of Darjiling Hills in West Bengal (India). *Abstr. Intn. Conf. Himal. Biodiv.*, Kathmandu.
- FSI 2001. *State of Forest Report 2001*. Forest Survey of India, Dehradun.
- Grierson, A. J. C. & Long, D.G. (ed.) 1983, 1984, 1987. *Flora of Bhutan*. Vol. 1 parts 1 - 3, Edinburgh.
- Rai, S.K. & Bhujel, R.B. 2007. Dye and gum yielding plants of Darjeeling Himalaya, India. In *Advances in Ethnobotany*, ed. A.P. Das & A.K. Pandey. Bishen Singh Mahendra Pal Singh, Dehradun.