The wood of this tree is very hard, tough and durable and is used for oil presses, house building and turnery.

As there is no organized cultivation and land is being cleared for agriculture, there is severe pressure on natural wild populations of Khirni for its fruit by the tribal people. As a result, the species falls under the 'critically endangered' category (extremely high risk of extinction in the wild)[10]. Presently, few natural populations are found in Ratlam, Chanderi, Jhabua and Neemach in Madhya Pradesh, Panchmahal and Bharuch in Gujarat, and Sirohi in Rajasthan. Moreover, this tree has received attention as commercial rootstock for sapota plants. A survey conducted by Malik *et al.*[3] in the diversity-rich areas of Madhya Pradesh, Rajasthan and Gujarat revealed substantial variability in all Khirni germplasm accessions. The fruit length ranged from 0.85 to 2.50 cm with an average of 1.78 cm and width ranging from 0.62 to 2.90 cm with an average of 1.55 cm. The fruit weight varied from 0.74 g to 4.13 g with an average of 1.51 g. Significantly, maximum coefficient of variation (CV) was observed in pulp weight (46.62%) followed by fruit width (44.51%) and fruit weight (43.71%). Genetic variability studies among 23 accessions of Khirni using random amplified polymorphic DNA (RAPD) markers have shown 78% polymorphism revealing substantial genetic diversity within this species[11].

Ex-conservation efforts have been taken at Cryogene Bank, NBPGR, New Delhi for 60 accessions of Khirni germplasm. However, *in situ* or complementary conservation efforts are lacking. Some of the germplasm collections are also maintained at CHES (CIAH), Godhra and CISH, Lucknow. Conservation of this species in natural habitat is the need of the hour, which can be further utilized for harnessing the potential of the species for its fruit and for medicinal properties. The main drawback with regard to this species is that natural regeneration is poor due to fruit collection from natural populations. It also shows non-orthodox seed storage behaviour and hence cannot survive for long periods. So both these issues must be considered during multiplication of this species among farmers/tribal communities. Above all, popularization of this species is required to generate awareness for its cultivation and conservation, as it is important for tribal populations and for ecosystem diversity. The present study aims to open up research areas for assessing the range of variability among natural populations and conduct improvement studies in the field to cull out elite cultivars for popularizing among farmers/tribals for conservation and sustainable utilization. This will prevent the species from becoming extinct.

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Eclipta prostrata (L.) L. (Asteraceae) – an eco-friendly natural hair dye

The common weed *Eclipta prostrata* (L.) L. (family Asteraceae) is a prostrate or reclining to erect, often branched, annual or perennial herb. It is used for various medicinal purposes like urinary infections, gastrointestinal disorders, jaundice, cough and lung infections. Several health benefits and antivenom properties of this plant have been reported[1–6].

In Purba Medinipur, West Bengal, India the rural people commonly use the leaf extract of this plant as a natural dye to colour their hair. The juice of the herb contains an oil-soluble black dye. The bhringraj (vernacular name of *E. prostrata*) leaf powder is mixed with coconut

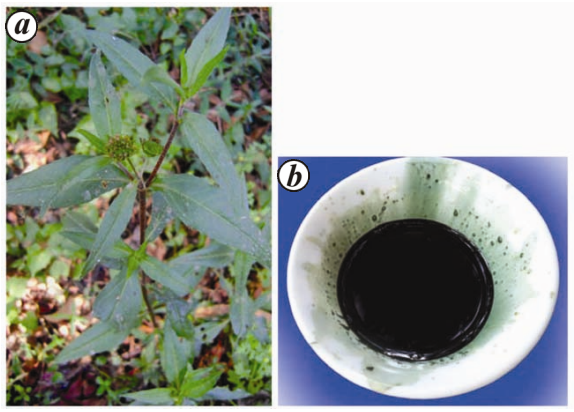

Figure 1. ***a***, *Eclipta prostrata* (L.) L. in its natural habitat. ***b***, Dark greenish-black leaf extract of *E. prostrata*.

oil and heated. It is then cooled and bottled for further use. To enhance the sticky nature and longevity of the dye, watery latex of *Musa paradisiaca* L. (family Musaceae) is mixed with it.

At first the leaves of the plant are washed thoroughly in water. Then they are crushed, so that a black juice drips out, which is collected in a container. A minimum amount of watery latex (*M. paradisiaca*) is diluted with water and the mixture is added to the leaf extract of *E. prostrata.* Then the solution is applied on the hair by hand or brush and kept for about 20–30 min. The solution is applied once again. According to the tribal people, the dye lasts for 7–10 days. The plant extract is also used as a eye liner. It is a natural hair tonic which prevents loss and promotes hair growth.

Generally it is found that the synthetic hair dyes cause various side effects like rashes, dandruff, itching, allergy, hair fall, etc. Some synthetic hair dyes are also carcinogenic. Also, since the prehistoric times, man has been using plants as a source of natural dyes because they are safe and eco-friendly[7]. Our study shows that this natural eco-friendly hair colour from *E. prostrata* is cheap and safe compared to synthetic hair colours.

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Tribute to two departed leaders

I liked and admired the late A. P. J. Abdul Kalam for a quality that is not often mentioned about him. As a member of the scientific fraternity, I met him at a conference where we started discussion on a topic that, I think, was very close to his heart. It started with the issue of India's difficult start in its efforts of developing rockets for eventually launching Indian satellites in space. As an aeronautical engineer, Kalam was designated as the Project Leader of the satellite launch vehicle programme of the Indian Space Research Organisation (ISRO). He was narrating the early difficulties in developing India's first launch vehicle. He was a great storyteller, and I can still visualize him, telling us about the event when the first launch was taking place under his leadership. The press and media were invited and there was excitement in the air as the launch moment approached. As the Project Leader, Kalam was the centre of attention. Unfortunately, soon after the launch there was a great silence as India's first launch vehicle had failed to take-off successfully. The media reporters rushed to Kalam and started asking him uncomfortable and pointed questions on the failure. Before Kalam could respond, the Chairman of ISRO, Satish Dhawan stepped in and said to the press something to the effect 'Gentlemen, why are you asking him these questions, I am the Chairman, ISRO and I will answer your questions'. Kalam felt relieved but admiringly looked at his leader who came to his rescue. But the real story that Kalam narrated was to follow later.

The next satellite launch vehicle came up for trial after some months. Kalam was again the Project Leader and Dhawan was still the Chairman of ISRO. The launch was a great success and there was great joy and jubilation at the launch site. The ever-present press rushed to the Chairman ISRO to get his reaction and congratulate him. Dhawan quietly stepped aside and responded 'Why are you coming to me? Congratulate him. He is the project leader responsible for the success' and pointed to Kalam standing silently at some distance. As Kalam told us this story, he knew what it takes to be a leader. He told us this story with great admiration for his leader – Dhawan, another aeronautical engineer and the man who gave a solid foundation to India's space programme that was started in a small way by the visionary Vikram Sarabhai.

Kalam's admiration for Dhawan was an example of how leaders lead from the front in adversity and 'hide' in oblivion at times of glory. We do not hear too many stories about unsung heroes like Dhawan. It took Kalam to point to us what leadership really entails and he lived a life to teach this lesson to the youth of the country when he spoke to them through his talks and writings. Through such stories he helped ignite the minds of the future young leaders. There are many untold stories about such leaders who are no more.

A thought occurs to me as I end my short tribute to these two departed leaders. If only India comes forward with many more leaders like Satish Dhawan and Abdul Kalam, the country could become a developed nation by 2020 – a vision that Kalam held so close to his heart. All Indians can pay their respect to Abdul Kalam by trying to work hard to achieve his vision…hopefully by 2030.

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