from the three-dimensional point of view. In Table 1, we re-interpret the original table 3 of Prathap[19] now introducing the Euclidean index into the analysis. We see little correlation between the primary dimensions P, i and η, showing that they are indeed orthogonal and therefore independent dimensions. Also shown in the table is the z-index defined as $(\eta i^2 P)^{1/3}$ which was introduced by Prathap[11] as an h-type index that is three-dimensional in nature. It has the dimensions of [P].

To visualize the exponential relationships between these indices the results from Table 1 are plotted on logarithmic scales in Figure 1. Under consideration are four indices, h, z, i_E and C. All four are indices of scientific performance, combining in different ways the primary terms of size (quantity), impact (quality or excellence) and consistency or unevenness. Since we are monitoring the performance of leading authors internationally in a newly emerging field, we expect that these will be well correlated with each other. From Table 1, we see that the Pearson's correlation of 0.94 is highest between i_E and C and the lowest correlation of 0.65 is between i_E and h. One can go beyond this simple understanding and propose that the slope of the log–log relation of three indices with the h-index relates to their presumed dimensions. We see very clearly that while the z-index and h-index scale identically as [P], the Euclidean index scales as [$P^{3/2}$] and C scales as [P^2]. The form of the relation between two variables (since they are related to begin with, i.e. each is a measure of the bibliometric performance of top scientists in a specialized field) is determined by the relation between the units in which they are measured.

We show the importance of dimensional analysis and dimensional homogeneity in bibliometric analysis. It is seen that while most h-type indices have the dimensions of [P], the newly introduced Euclidean index has the dimensions [$P^{3/2}$]. It is not enough to have an axiomatic basis for designing an indicator; it is necessary to examine for dimensional homogeneity to ensure that it is commensurable with other similar indicators. Each indicator can be used in its own right but each will scale differently, e.g. while the z-index and h-index scale identically as [P], the Euclidean index scales as [$P^{3/2}$] and C scales as [P^2]. The form of the relation between two variables (since they are related to begin with, i.e. each is a measure of the bibliometric performance of top scientists in a specialized field) is determined by the relation between the units in which they are measured.

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Datura discolor Bernh. (Solanaceae), an overlooked species in India

The genus *Datura* L. (Solanaceae) is one of the important plant groups known for traditional and modern medicinal uses as a source of tropane alkaloids. Worldwide the genus comprises about 14 species which are native to America, but vastly diversified in Mexico[1]. According to Symon and Haegi[2], the Europeans introduced different species of *Datura* to other parts of the world. One of the oldest occurrences of *Datura* is from the pre-Columbian period in the old world, as has been proven with historical and taxonomic evidences by Geeta and Gharaibeh[3].

Five species, viz. *D. ferox* L., *D. inoxia* Mill., *D. metel* L., *D. quercifolia* Kunth, *D. stramonium* L. are known from India[4,5]. These are either cultivated or naturalized in different environmental conditions throughout the country. *Datura* is one of the major plant groups used in the Indian traditional system of medicine, especially Ayurveda. Many important drugs are obtained either directly from *Datura* species or synthesized from their precursor molecules. *D. metel*, *D. stramonium* and *D. inoxia* are commonly known in India as 'Dhotra'[4]. Tropane alkaloids such as atropine and scopolamine obtained from *Datura* are in great demand in the European countries.

India is one of the leading exporters of *Datura* species in international crude drug market[6,7]. Closely related species share almost similar chemical compounds often leading to taxonomic ambiguity affecting the trade of authentic raw materials[8,9]. Though therapeutic uses,

Table 1. Comparative morphological account of *D. inoxia* and *D. discolor*

Character	*Datura inoxia* Mill.	*Datura discolor* Bernh.
Habit	Puberulent	Glabrous (young parts sparsely pubescent)
Leaves	Ovate to elliptic; crenate, acute to attenuate at apex, lateral veins c. 7, brochidodromous, sparsely pubescent above, puberulent beneath	Deltoid to apparently pedate, dentate, attenuate to acuminate at apex, lateral veins c. 4, rectipinnate, glabrous above, sparsely pubescent beneath
Calyx	Lobes lanceolate with 2–4 unequal toothed apex, tube terete	Lobes ligulate to lanceolate with unequally five-lobed apex, tube angular fluted
Corolla	Reduplicate, c. 11 cm long, white	Reduplicate, c. 16 cm long, white with streaks of lilac to pale purple throat
Fruit	Globose, densely echinulate, c. 5 cm in diameter, persistent calyx margin crisped to undulate	Ovoid, somewhat sparsely aculei-echinate, c. 3.5 cm in diameter persistent calyx margin crisped to lacerate
Seed	Entire or repend–reniform, testa stramineous, smooth to foveolate, distinctly margined, hilar residue absent	Sinuate–reniform, testa black, bullate to verrucose, not margined, hilar residue present

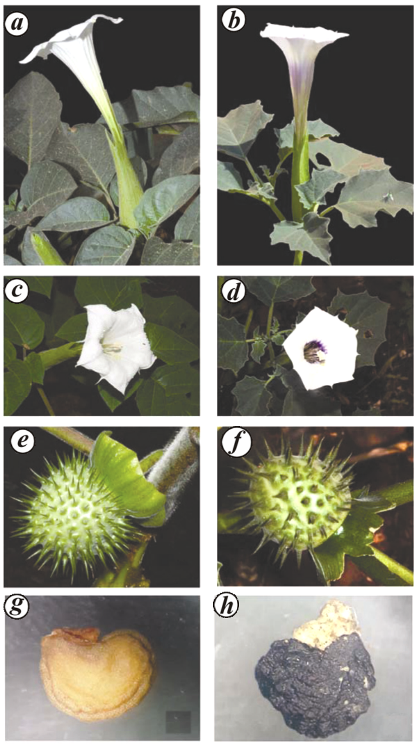

Figure 1. *Datura inoxia*. ***a***, Flowering twig; ***c***, flower; ***e***, fruit; ***g***, seed. *Datura discolor*. ***b***, Flowering twig; ***d***, flower; ***f***, fruit; ***h***, seed.

phylogenetic relationships and molecular evaluation have been studied in the genus *Datura*[10,11], in trade it is reported to find admixtures of related and allied species affecting the authenticity of source materials[12]. The present study was undertaken to provide correct taxonomic identity of *Datura* species and their distribution in different parts of India.

In July 2016, a collection was made along the roadside from Hukkeri to Gokak in Karnataka, with flowers having prominent pale purple corolla throat which is completely absent in *D. inoxia* (Figure 1 *a*, *c*, *e* and *g*). From a critical study of the literature, protologue and herbarium specimens, these specimens were identified as *D. discolor* Bernh. (Figure 1 *b*, *d*, *f* and *h*). Additional collections of *D. discolor* from adjoining localities Ghataprabha and Arabhavi made in November 2016 confirmed its common occurrence in the eastern parts of Belgaum district, Karnataka. The specimens with accession nos 1304, 1315 and 1316 are deposited in NGPCR.

The natural distribution of *D. discolor* extends across western North America to northern Mexico and the Caribbean Islands. It is also reported to be commercially cultivated for extraction of alkaloids in Egypt[13]. It has been described by Bernhardi[14] from India (western region with no precise locality). Interestingly, apart from the protologue, this species is not documented in any of the publications from India. The present documentation of *D. discolor* is the first collection after type and extended distributional record of the species in India. So far this species was overlooked due its morphological similarity with *D. inoxia*. *D. discolor* is naturalized in a stretch of more than 100 km along the roadside; often the populations are intermixed with *D. inoxia*. Table 1 presents the distinguishing characters of *D. discolor* and *D. inoxia*.

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