Plagiarism and plant taxonomy

The Indian Academy of Sciences, Bengaluru, considers plagiarism as 'the appropriation of another person's ideas, processes, results or words without giving appropriate credit' and requests the authors to properly refer and acknowledge matter taken from the literature before submitting any document for publication in its journals (https://www.ias.ac.in/Journals/Overview/Academy_Policy_on_Plagiarism). However, in the field of plant taxonomy, the string of words used for referring to the work of others or giving credit to them for their literature, which the author consulted, can also be mistaken as plagiarism.

In a standard taxonomic document, citation of protologue, Floras, monographs and other documents are mandatory. If all the authors use the standard format of abbreviations of Floras/journals/checklists and author names, it will be the same in all documents and will appear as similar text and consequently be treated as plagiarism. Here is an example of two common plants: *Triticum aestivum* and *Mangifera indica*. These will be written by all as *Triticum aestivum* L., Sp. Pl. 1: 85. 1753 and *Mangifera indica* L., Sp. Pl. 1: 200. 1753.

This is plagiarism because some earlier document in the access of plagiarism checking tool had a document which also wrote these names in the same way. If someone is writing a general Flora/legume Flora/grass Flora of any region for his thesis (Master's or doctoral), it is certain that it will have sufficient plagiarism of this type to be disqualified for submission. Another example showing citation of protologue and consulted Floras makes the situation clearer.

'*Cassia fistula* L., Sp. Pl. 1: 377. 1753; Baker in Hook. f., Fl. Brit. India 2: 261. 1878; Duthie, Fl. Gangetic Plain 1: 291. 1903; Osmaston, Forest Fl. Kumaun 187. 1927; B.D. Naithani, Fl. Chamoli 1: 182. 1984; Sanjappa, Legumes India 16. 1992; R.D. Gaur, Fl. Distr. Garhwal 247. 1999; Uniyal *et al*., Flowering Pl. Uttarakhand 114. 2007; B.K. Shukla & A.N. Singh in Singh *et al*., Fl. Uttar Pradesh 1: 496. 2016'.

A plagiarism detection tool will mark the above text as similar to an earlier document. If the Floras follow standard abbreviation, be it local Flora, district Flora or legume Flora of the region, these will be written as given above. In this text, every author name and Flora/document name is a standard abbreviation of that available in IPNI (https://www.ipni.org/) and Tropicos (https://www.tropicos.org/home), which are reputed online resources. If someone follows this, it will be treated as plagiarism. If the author has fewer plants and all the Floras of that region are cited, the percentage of plagiarism may exceed the often permissible limit of 10. In India, a UGC notification in this regard defines plagiarism as 'the practice of taking someone else's work or idea and passing them as one's own' and classifies plagiarism into four levels based on 'similarity'[1]. Level '0' plagiarism (similarities up to 10%) does not invite any penalty, but level 1 (similarities above 10–40%), level 2 (above 40–60%), and level 3 (above 60%) plagiarism are punishable by the Institutional Academic Integrity Panel (IAIP) constituted by a university. The punishments indicated are resubmission of the revised draft within six months (for level 1), debarring submission of the revised draft before one year (for level 2) and cancellation of registration of the student for the concerned programme (level 3).

A plagiarism report is required just when submitting a Master's or doctoral thesis, and the exhausted author (student) of a plant taxonomy thesis could suddenly face an embarrassing situation. How does one tackle this problem? Using one's own abbreviations, at least for Floras, and detailing these in the page of 'Abbreviations' is one way, but by sacrificing standard taxonomic procedure of citing protologue and the literature. Otherwise, utilization of the maximum permissible limit of plagiarism (variable up to 30% in different universities) is the only way out. Though above 10%, it is liable to punitive action following the UGC notification[1].

The software cannot determine plagiarism; it can only point to some cases of matching text. Moreover, plagiarism tools may report false positives for common phrases, long names of institutions or even reference information[2]. In plant taxonomic documents, protologue information is always non-variable and a string of words, following standard abbreviation, for referring to the earlier published document. In such situations, we probably need specific rules, experts of this field in IAIP, and appropriate plagiarism detection tools which do not rely solely on the extent of similarities.

1. https://www.ugc.gov.in/pdfnews/7771545_academic-integrity-Regulation2018.pdf (accessed on 19 September 2023).
2. Weber-Wulff, D., *Nature*, 2019, **567**, 435.

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Disposal of medicines: a prospective view

K. Keshava Rao has correctly pointed out where and how to dispose of unused medicine after the expiry date[1]. The usual practices at home, throwing tablets into the dustbin, might be harmful to someone else and flushing down pouring liquid medicine into the sewer, toilet or sink resulted in them entering the water supply. Treating water before putting it into the public water supply, they do not process water to remove drugs that become a part of both water and soil, thereby harming the environment and health. Drinking and household water are correlated with the environment and health, which we must prevent. In addition, studies in India have found that 73% of consumers discarded expired medicine in household trash[2], however, appropriate disposing method must be introduced.

Consequently, properly disposing of unused and outdated medicines/drugs like pills, liquid drops, patches, creams and inhalers by putting them in the household

trash or garbage after removing their containers and mixing them with something undesirable in packed appearance could be safer usually. However, management of collecting expired medicines from home or societal level is highly required in practice, which is an issue of concern. Furthermore, 93% of people favour collecting expired medicines from home through framed government programme[2]. Therefore, strengthening pharmaceutical waste management at the home or societal level should be the safest way and also it would be a turning point in Swachh Bharat Mission. Government must ensure to implement an efficient system of waste management through realistic policy for the appropriate derivation in practical terms for disposing the remains of unused and expired medicine in public interest.

1. Kesava Rao, K., *Curr. Sci.*, 2022, **123**(5), 625.

2. Manocha, S., Suranagi, U. D., Sah, R. K., Chandane, R. D., Kulhare, S., Goyal, N. and Tanwar, K., *Curr Drug Saf.*, 2020, **15**(1), 13–19. doi:10.2174/157488631466619100-8095344. PMID: 31593533; https://pubmed.ncbi.nlm.nih.gov

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Volume of tree species

In a recent article, Apoorva *et al.*[1] have calculated the volume of different tree species using the formula $V = \pi \times r^2 \times h$, where V is the volume, r the radius at breast height (DBH/2) and h is the height of the tree. The form of a tree trunk can never be a perfect cylindrical, therefore the above-mentioned formula cannot be used for the estimation of volume of any tree species. Species-specific volume equations developed by several researchers should have been used to estimate the volume of standing trees. Thus, the results and conclusions are based on wrong calculations.

1. Apoorva, M. R. *et al.*, *Curr. Sci.*, 2023, **125**(3), 324–329.

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Response

The formulae used and the procedures followed are supported by standard methodology and formulae, with references cited for all of them at each step of the calculations. The papers published in this aspect in other journals of environmental sciences, forestry and related subjects have also been quoted. They are all based on standard procedures, as mentioned in our article.

All articles referred by us cannot be erroneous. Here, we cite a few in support of our study, although many are available (online and offline) on this research aspect.

(i) Keerthika and Chavan[1] have calculated the mass of tree species based on the wood density of different species according to FAO estimates (http://www.fao.org/3/w4095e/w4095e0c.htm).

Wood density = Biomass/volume.
Biomass = Volume × wood density.

(ii) Sharma *et al.*[2] have assessed the carbon sequestration potential of tree species in Amity University Campus, Noida.

(iii) Keerthika and Parthiban[3] have calculated the volume of a standing tree using the following equation:

Volume of tree $(\mathrm{m}^3) = \pi r^2 h$.

(iv) Mithbavker *et al.*[4] have conducted a case study on the carbon sequestration potential of trees in an urban area.

(v) Preeti Toppo *et al.*[5] have conducted a study on biomass, productivity and carbon sequestration of plant growth under the silvipastoral system.

Hence, we would like to emphasize that our calculations were done following standard formulae, procedures and according to the standard references in many scientific studies.

1. Keerthika, A. and Chavan, S. B., *Curr. Sci.*, 2022, **122**(7), 850–853.
2. Sharma, R., Pradhan, L., Kumari, M. and Bhattacharya, P., *Environ. Sci. Proc.*, 2021, **3**, 52.
3. Keerthika, A. and Parthiban, K. T., *Curr. Sci.*, 2022, **122**(1), 61–69.
4. Mithbavker *et al.*, *Int. J. Adv. Res. Innov. Ideas Educ.*, 2022, **9**(3(VII)), 53.
5. Preeti Toppo, Oraon, P. R., Bijay Kumar Singh and Abhay Kumar, *Curr. Sci.*, 2021, **121**(12), 1594–1599.

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