One of the many criteria for selection is the use of English which has become the *lingua franca* of science. Any journal which claims international significance will at minimum include English titles and abstracts.

The Gibbs article characterizes *SCI* coverage of Third World science as declining simply because the coverage of some local journals has discontinued. In fact, total article coverage has increased substantially because Third World scientists increasingly publish in the international peer reviewed journals, where their work is seen and read by peers worldwide. We have documented these trends at numerous conferences[5].

In 1981 *SCI* indexed 904 articles from Mexican authors. In 1994, coverage increased to 2478 articles. However, the impact of Mexican research relative to the rest of the world has remained stable during this 14-year period. Its impact on average is 50% below the world average. These and other data demonstrate that *SCI*'s coverage of 3300 journals goes far beyond the needs of most of its subscribers. Indeed, the reality today, as it was 50 years ago, is that a small percentage of journals accounts for a major share of papers published and an even greater share of citations. 100 journals account for over 20% of the articles published and over 40% of the citations. 1000 journals account for 70% of papers and 85% of the citations (see Figure 1).

Any journal or indexing service has economic limitations. Even *Medline*, a government-subsidized enterprise, has limited resources and must limit coverage. To an outsider, selection decisions may seem as arbitrary as peer review of research grant applications does to some researchers.

The Zelinski quotation, featured in your article, implies that population should determine the number of journal articles to be covered by indexing services. On that basis, journals published in China, India, and Russia would receive the highest priority regardless of the quality or relevance of the material.

SCI is an index which already includes 650,000 source articles per year and over 15,000,000 cited references appearing in 3300 journals.

Many Third World countries suffer by publishing dozens of marginal journals whose reason for being is questionable. I have urged them to combine the best material into larger regional journals to achieve a critical mass. In addition, their local funding sources need to adopt stringent criteria for publication including international peer review. The precedents for this are to be seen in the numerous European journals which have made many national journals essentially obsolete. Nevertheless, many local journals published in vermacular languages serve a useful purpose for reviewing the clinical and applied literature to the benefit of local physicians and industry. These serve a purpose similar to thousands of American trade or state medical journals which have little impact on research but they too are not covered in *SCI*[6]'.

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Conclusion

In correspondence with numerous scholars, I have indicated that there has never been an objective definition of 'bias' or discrimination with respect to secondary databases. The difficulty can be characterized as a chicken and egg situation. If all the world's journals were included in the *ISI* citation indexes, then we could more easily decide which should be given the highest priority of coverage. Since this is not possible, considering the economic limitations, my recommended solution is that scientists in each country or region should gather whatever data is needed to evaluate their journals and give *ISI* and other database publishers prioritized lists of journals they would recommend. Local citation indexes can be compiled if necessary to facilitate such evaluations.

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SCIENTIFIC CORRESPONDENCE

Flowering in *Bambusa vulgaris* var. *vittata*

The peculiar behaviour of many woody bamboos, of flowering (and seeding) only at very long intervals, followed by the death of the flowered clumps[1], has intrigued mankind for long[2], and still remains a mystery[3].

The information available on this interesting natural phenomenon is somewhat confusing because of difficulties in the correct identification of the species and varieties of bamboos, and the many synonyms in vogue. Like many other aspects of bamboo biology, bamboo taxonomy also suffers from their peculiar flowering behaviour, because of the non-availability of flowering specimens for routine identifications.

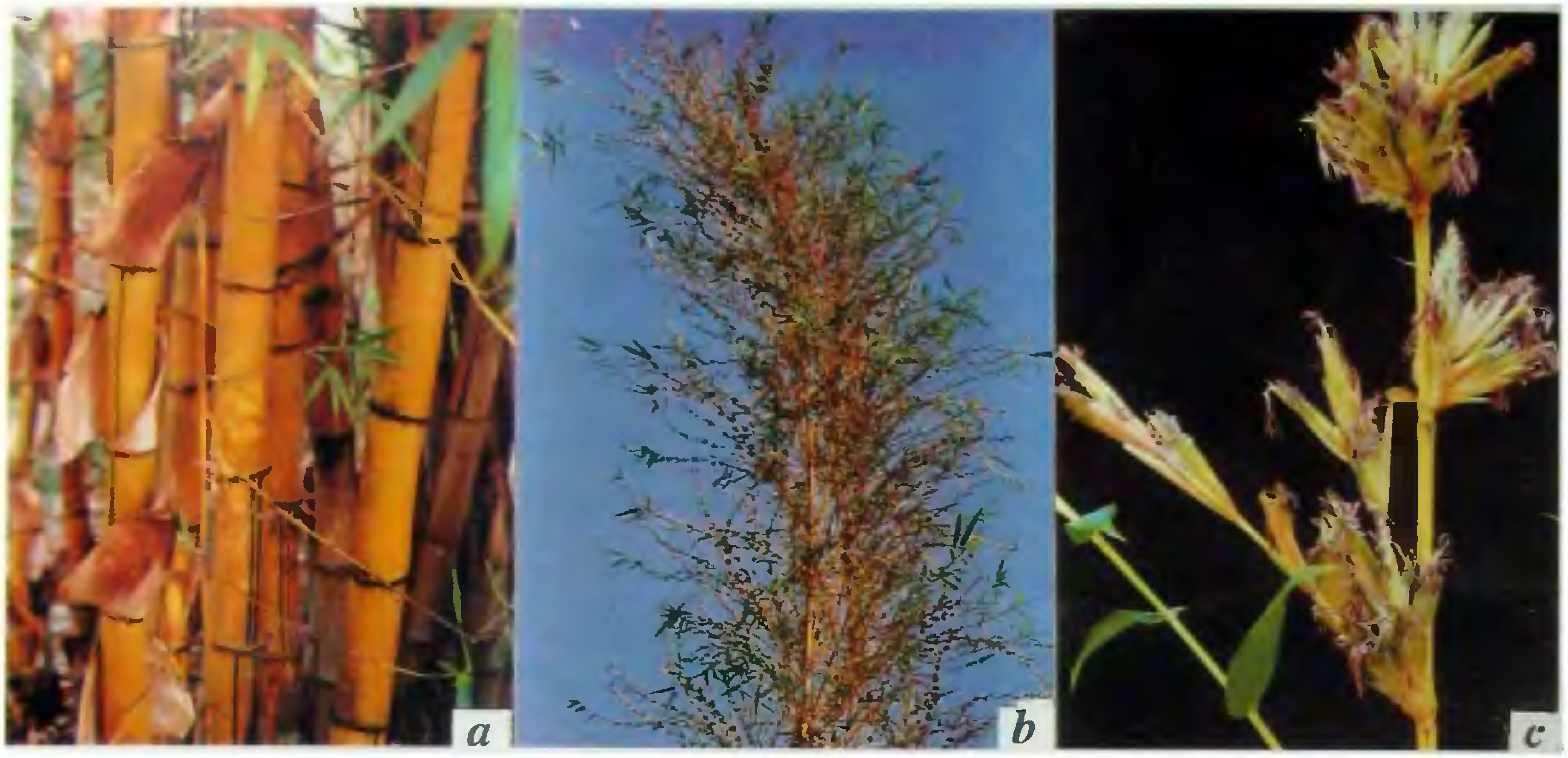

Figure 1. ***a***, A clump of *Bambusa vulgaris* var. *vittata*. ***b***, View of a flowering clump. ***c***, Close-up of spikelets.

Recently Koshy and Pushpangadan have reported flowering in *Bambusa vulgaris* (bamboo having green striped yellow culms)[4], a bamboo known to flower only very rarely, and widely distributed in India.

This bamboo (having green striped yellow culms) is commonly referred to as *B. vulgaris*[2–4] (common names 'yellow bamboo' and 'tiger bamboo'). Strictly speaking, *B. vulgaris* Schrader ex Wendland[5] is a moderate sized and not densely tufted bamboo, with bright green, glossy, erect culms 8–20 m high, 5–10 cm in diameter and 7–15 mm in culm-wall thickness. Internodes are up to 45 cm long. Mature culms are yellowish[1]. Tiger bamboo forms graceful tufted clumps. Culms are 4–8 m in height, 5–8 cm in diameter, and thick-walled. Internodes are 10–15 cm long. The culms are glabrous, shining, yellow with light green stripes, or very rarely light green with yellow stripes (Figure 1 *a*). This bamboo is variously referred to as *B. vulgaris* var. *vittata* (A & C Riviere); as *B. vulgaris* var. *striata* (Gamble, Camus and Holttum); and as a separate species *Bambusa striata*, distinct from *B. vulgaris*[6]. Hence *B. vulgaris* var. *vittata*, *B. vulgaris* var. *striata*, and *B. striata* are synonyms of tiger bamboo which is distinct from *B. vulgaris*. All these names including *B. vulgaris* are interchangeably used to refer to this bamboo. Now it is also referred to as *Bambusa vulgaris* 'Vittata', a colour variant of *Bambusa vulgaris*, which has been selectively propagated[7]. Reversion to the 'whole-green' state is reported to be possible[8]. It may have to be noted that this bamboo is distinct from *B. vulgaris* not only in colour, but also in size (much smaller). We refer to this as *B. vulgaris* var. *vittata* (*vittata* in Latin means longitudinally striped), after A & C Riviere[9].

Brandis[10] classified bamboos into three categories on the basis of their flowering behaviour: (i) those flowering annually or nearly so, (ii) those flowering periodically, and (iii) those flowering irregularly. According to Blatter[11] these three categories are fairly complete, and species which do not fit under the first two categories fall under the third category. Though it is believed that this species has a flowering cycle (intermast period) of 80 ± 8 years[12], as it does not produce seeds, it may have to be considered as not having an intermast period (flowering cycle). A flowering cycle or an intermast period is the time-lapse between two successive generations, and it is calculated from seedling to seed. We feel that *B. vulgaris* var. *vittata* (and *B. vulgaris*) may have to be considered as belonging to the third category of irregularly-flowering bamboos.

Absence of seed-set in a mast seeding bamboo can result in the extinction of the species when it flowers gregariously. But in *B. vulgaris* var. *vittata* (and also in *B. vulgaris*) since in each occurrence of flowering only few clumps are involved[1,13,14], the possibility of extinction may have to be considered as not imminent. In most bamboos when a mother clump flowers, all its (vegetatively propagated) daughter clumps also flower. Because *B. vulgaris* var. *vittata* does not set seed, the natural population may have developed by vegetative propagation. Still the flowering of only few clumps at very long intervals shows a marked difference from the flowering of many other bamboos.

Some plantlets (raised from culm cuttings) of this bamboo (*B. vulgaris* var. *vittata*), bought in January 1997 from a private nursery in Pune, were found to be in flowering (Figure 1 *b*, *c*). On inquiry it was learnt that the mother clumps were also in flowering. Altogether there were three clumps, one big and two smaller (possibly vegetatively propagated from the former), growing in close proximity.

We collected large quantities of mature, dried-up spikelets, and physically checked for any seed formation. There were no seeds. We also made similar observations as Koshy and Pushpangadan[4]; absence of seed-set in nature as well as failure to form seeds on artificial pollination. We suspect that the failure of the lemma and palea to open up may be due to the malfunctioning of the lodicules, which bring about this process in grass florets[15]. Moreover, we noticed that when the climatic conditions were favourable, honey bees visited the florets and collected pollen, at the time of anthesis (anther dehiscence and pollen release).

By acetocarmine staining the pollen grains looked fertile. However, when *in vitro* pollen germination was attempted using a wide range of sugars, the pollen did not germinate. Earlier, pollen of two other species of bamboos (*Bambusa arundinacea* and *Dendrocalamus strictus*) readily germinated in modifications of Brewbaker and Kwak's[16] medium containing 1% sucrose and 1% glucose respectively[17–19]. This indicates non-viability of pollen in this bamboo. Non-viability of pollen may also be one of the reasons for the absence of seed-set as suggested by Koshy and Pushpangadan[4]. We also conducted some preliminary experiments on anther culture. Though the anthers did not respond, some ovules developed. This again indirectly points towards non-viability of pollen grains. Reason/s for the non-viability of pollen may throw some light on the evolution of this bamboo.

Interestingly there is one more report of flowering in two clumps of '*Bambusa vulgaris*' from Kona side of the Big Island of Hawaii[20].

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Risk potential of a biocontrol agent unmasked

Recent awareness on the ill-effects of indiscriminate use of synthetic fungicides has resulted in the search for alternate eco-friendly methods of plant disease control. One option actively being adopted is biological control with antagonistic organisms. *Sclerotium rolfsii*, a devastating polyphagus soil-borne plant pathogen, is effectively managed through a number of biocontrol agents such as some fungi and bacteria. *Bacillus subtilis* produces a host of antibiotics which effectively control *S. rolfsii*. Much emphasis is given on the use of this bacterium due to its superb survival competence over a wide range of conditions through the formation of resistant endospores[1]. However, our observations show that despite effective control of the vegetative growth of *S. rolfsii*, *B. subtilis* induced sexual reproduction in this fungus, a hitherto unreported phenomenon with varying implications.

In our routine tests of the antagonistic potential of a number of bacteria against *S. rolfsii* on potato dextrose agar (peeled potato 250 g; dextrose 20 g; distilled water 1000 ml) medium at 25 ± 2°C, an isolate of *B. subtilis* showed promising antagonistic activity on the mycelial growth of the pathogen and checked sclerotium formation (Figure 1 *a*). However, on prolonged incubation (10–12 days), hyphal growth characteristically different from the normal fluffy growth was observed which varied in dimension and branching habit (Figure 1 arrow) and eventually thin hyphae grew further bearing hymenia with fertile basidia, each with four sterigmata and basidiospores (Figure 1 *b*). Further study revealed that the presence of sugar is an essential requirement for the antagonism and induction of sexual reproduction by *B. subtilis*. Depletion of dextrose in the medium inhibited antagonistic activity and sexual stage formation. However, this effect was reverted following addition of 5 g dextrose (optimum being 20 g per l) in the medium. The frequency of sexual state formation in *S. rolfsii* by *B. subtilis* was 20–30%.

Our observation of this phenomenon has the following implications: (i) The native population of *B. subtilis* in the soil may have a direct role on the genetic recombination of *S. rolfsii* through the induction of sexual reproduction.