Recognition of traditional medicine in the Nobel for artemisinin is inescapable

On whether or not the award of the Nobel Prize to Youyou Tu for the discovery of artemisinin is a vindication of the efficacy of traditional Chinese medicine[1], it is illuminating to compare certain facts and figures associated with her approach with that of modern antimalarial drug discovery. Tu had tested 200 recipes and 380 herbal extracts, selected on the basis of traditional Chinese medicine literature, in animal models, and identified extracts from *Artemisia annua* L., the source of artemisinin, with promising parasite growth-inhibiting activity[1,2]. In contrast, no new class of antimalarials has been introduced into clinical practice after artemisinins in the last 20 years, with high-throughput screening of around 4 million compounds in *in vitro* assays only resulting in a single compound in clinical trials, the risk of failure of a new antimalarial in phase-2 trial being significant[3]. A higher success rate of drug discovery seems apparent in the former approach. A clear recognition of traditional medicine in Tu's award is thus inescapable. It is notable that the majority of new drugs have been plant-based, either a natural product itself or a synthetic compound derived from the structure of a natural product[4]. The recent emphasis on high-throughput synthetic library screening for drug discovery coupled with decline in new drug approvals on the one hand, and the availability of advance drug discovery technologies on the other are increasingly calling for exploiting vast untapped biological resources towards developing new therapies from natural products[4,5]. It is expected that the Nobel for artemisinin will energize efforts to meet this demand.

As regards the overall skepticism or enthusiasm about the usefulness of traditional medicine including Ayurveda[1], it is necessary that rigorous scientific investigations are conducted to evaluate their efficacy and safety, and to identify active ingredients in them. To that end, research is being supported by several countries, for example, USA (https://nccih.nih.gov/), China (http://www.cacms.ac.cn), and India (http://indianmedicine.nic.in/). Additional public and private support will be rewarding. The critics and advocates of alternative medicine alike need to be open-minded about its therapeutic benefits, adverse effects, quality, and impact on biodiversity.

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Indian Science Congress – a circus or a forum for showcasing hard science?

The recent comment of Venkatraman Ramakrishnan[1], Nobel laureate of Indian origin and President of the Royal Society of Britain, about the Indian Science Congress (ISC), 'It was a circus. I find that it's an organization where very little science is discussed', triggered a lot of debate[2,3] on the seriousness of the organization and deliberations in ISC. Perhaps, the same is relevant for meetings of some other societies in different branches of sciences in India. The media reactions varied from strongly endorsing Ramakrishnan's views[2] to the defence of the status quo and the manner in which ISC is conducted[3]. The hallmark for scientific meetings of the size of the ISC is the Annual Meeting of the American Association for the Advancement of Science (AAAS)[4]. The AAAS defines the science policy and is the watchdog of overall quality of American science with the mission statement: 'advance science, engineering, and innovation throughout the world for the benefit of all people', with nine broad goals[5].

It seems the opinion of Ramakrishnan is candid when we see it in the context of the experience of a large cross-section of scientists who have been participating in the annual meetings of various societies. Often, there are stalls of sightseeing tour operators in the vicinity of registration counters. Very rarely inauguration starts on time because the chief guest often arrives late. There is a lot of photo-op, with presentation of mementos to the chief guest and other dignitaries on the dais. There have been occasional efforts to do away with these 'time wasting' and feudal ceremonies, but the show goes on. The usual programme is inauguration (very long) followed by 'inaugural tea', which sometimes extends up to lunch break. The delegates plan for sightseeing immediately after the inauguration. Usually, there is very less attendance in sessions (with few exceptions), but full attendance during lunch and dinner. It is not unusual that in some presentations the attendance could be less than ten, including the chairman, rapporteur and speaker. The extended forenoon rituals in the inaugural session are at the cost of scientific presentations and deliberations. So, the chairmen often ask the speakers to rush through their presentations and advise discussion, if any, during lunch break. Often there is a spillover for the afternoon session. Bigger the scientific