

A PROBLEM OF SCIENCE AT THE PADMA AWARDS

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Cheruvayal K. Raman was awarded the Padma Shri for having conserved more than 50 rice varieties on a modest farm in Wayanad. | Photo Credit: MUSTAFAH K.K.

Since the Government of India began conferring the Padma awards in 1955, the work of laureates in the 'science and engineering' category has most often been related to mechanical engineering, materials science, metallurgy, aeronautics, space science, agriculture, plant breeding, mathematics and theoretical physics. Scientific work in these fields is typically identified by scientific papers, but plant breeding may be a notable exception.

The work of a plant breeder can be evident as a paper or in the form of a plant variety that many cultivators adopt, which has beneficial properties and/or which is being preserved. This in turn raises a useful question about the popular perception of science.

Science is distinguished in practice by following the scientific method and the rituals of academic publishing, among other things. But its social identity is of an activity that only a highly and specifically trained group of people is allowed to practise, whose language and texts are unintelligible to the people at large, and whose findings are presumed to be implicitly superior to knowledge that isn't uncovered and organised by the same rules.

Successful plant breeders defy the latter, but they also deviate from the former. So, perhaps they should be rewarded under a category called 'agriculture and seeds', separate from 'science and engineering', if only to indicate that a success in question may not be a scientific success per se.

The work of two recipients of this year's Padma awards shows what can happen when we take the lack of adherence to science's rituals to an extreme. Cheruvayal K. Raman was awarded the Padma Shri for having conserved more than 50 rice varieties on a modest farm in Wayanad. He wasn't formally trained as a botanist or scientist, nor does he appear to have published scientific papers. Yet Mr. Raman has been recognised "for conserving plant agro-biodiversity" and for preserving seed varieties that could strengthen India's food security in the face of the climate crisis.

Over the years, agricultural scientists have understood the scientific basis of the work of those like Mr. Raman, which long predates the emergence of science itself. That there is in fact a scientific basis is probably why successful plant-breeding efforts are recognised in the 'science

and engineering' category. However, as stated earlier, such a basis alone doesn't make something science.

But then, what explains the Padma Shri in 'science and engineering' for Khader Vali Dudekula? Mr. Dudekula has been credited with popularising the dietary benefits of millets, but his prescriptions also include scientifically dubious elements such as homeopathy; consuming millets to "prevent" or "cure" various cancers, diabetes and polycystic ovarian syndrome (PCOS); and avoiding the consumption of milk, eggs, and non-vegetarian food.

Like Mr. Raman, Mr. Dudekula doesn't appear to have published any scientific papers demonstrating the efficacy of these claims. But unlike Mr. Raman, scientists haven't unearthed a scientific basis for homeopathy or millet-based cures for cancer, diabetes and PCOS; and unlike Mr. Raman, Mr. Dudekula's claims undermine important, time-sensitive dietary and medical interventions.

Through clinical trials, we know how and why these interventions work, we can reproduce their effects, and there is (at least on paper) a process by which we can hold errant practitioners accountable. We also know, thanks to the efforts of experts like Dr. Abby Philips, what we risk when we overlook the almost inevitable side-effects of 'traditional' medicine and delay tested treatments. Dr. Philips has documented several instances of people consuming 'natural cures' because they tend to overestimate the cures' therapeutic effects while downplaying their ability to be harmful and/or to be impotent against their condition. Milk and eggs are also important and cheap sources of minerals and proteins, while a part of Ayurveda, which Mr. Dudekula has espoused at large, is devoted to the benefits of non-vegetarian food.

We shouldn't celebrate alternative systems that compromise trust in scientifically tested medicine in the midst of a pandemic and several epidemics (including tuberculosis and HIV/AIDS). Increasing access to and consumption of millets could help India reduce its frightening prevalence of anaemia, but going from here to claiming prophylactic and therapeutic effects against cancer is a big leap and certainly requires scrutiny.

Before conferring any Padma award in the 'science and engineering' category, the Indian government must ensure a claim has been scientifically validated and, in general, encourage the systematic validation of all such claims before they are lauded. Otherwise, the action insults the purpose of science, the civilian laurels, and the government's own public healthcare apparatus.

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