

Disparity and delay in implementation of fellowship hike disappoints research scholars

Indian students pursuing research careers constitute less than 1% because most of them either prefer to pursue research abroad or opt for high-salary jobs (corporate/IT/industry). The migration of highly skilled researchers from India to the West is not only due to financial constraints, but also because of their uncertain future in academia. The fellowship paid to Indian researchers is inadequate compared to their Western counterparts. Additionally, irregular disbursal of monthly fellowships, year-long delays and unscientific financial cuts from sanctioned research grants adversely impact the development of Indian science. Students sometimes even regret choosing research as a career^{1,2}.

Since November 2013, after many months of prolonged protests by researchers, both in social media and on ground, for a scholarship hike (previous hikes in April 2007 and April 2010), the Department of Science and Technology, New Delhi revised the fellowship by 55% with effect from 1 October 2014. Further, the University Grants Commission (UGC) offered a similar hike (55%) for research fellows under its numerous schemes with effect from 1 December 2014. Subsequently, the Ministry of Human Resource and Development (MHRD), New Delhi also notified its fellowship hike, but the date of effect is 1 February 2015.

In October 2014, when the initial announcement on fellowship hike was

made just before Diwali festival, it was expected to bring smiles to the research community. Raghavendra Gadagkar (President, Indian National Science Academy) said that the current fellowship hike is a good move that was long overdue³. Quite by contrast, let alone the delay in implementing already promised hikes, even the budgeted sums for ongoing research projects are not disbursed promptly.

The difference and delay in implementation of the hike has disappointed research scholars across India, including those in the IITs/IISERs/NITs, who had initiated an indefinite nationwide protest, including hunger strikes at Jantar Mantar, New Delhi, seeking the early and uniform implementation of the stipend hike. Later, the MHRD notification intensified protest by the research scholars across the country, such as candlelight vigil, protest marches and human chain formation led by Indian Institute of Science (IISc), Bengaluru fellows. These researchers opted novel ways of protest like 'a postcard and cheque campaign', 'Open Day', street play on 'The great Indian PhD show', 'mar gaya vigyan', including sporting black arm bands to bring the issue to the notice of the Prime Minister, during his visit to IISc. A research shutdown across the country is also on the cards if their demands are not met and the issue has been highlighted in prestigious global journals as well^{4,5}.

Government of India has launched many schemes to expand research and encourage young researchers. To name a few, the INSPIRE programme by DST, Biotechnology Ignition Grant (BIG) scheme DBT-BIRAC, Ishan Uday-Special Scholarship programmes for the North Eastern Region and National Fellowship for Other Backward Classes by UGC. However, the need of the hour is to attract students who wish to pursue research as a career. The periodic revisions of fellowship and timely implementation of hikes would go a long way to retain the best scientific research talent in the country and encourage them to do their best.

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2. Dhar, U., *Curr. Sci.*, 2014, **107**(3), 337.
3. Pallava, B., *Science*, 2014; <http://news.sciencemag.org/asiapacific/2014/10/indian-research-scholars-welcome-big-bonanza-stipends>
4. Priyanka, P., *Science*, 2015; http://news.sciencemag.org/asiapacific/2015/02/indian-grad-students-take-streets-over-miserable-pay#disqus_thread
5. Padma, T. V., *Nature*, 2015; <http://www.nature.com/news/india-s-phd-students-on-hunger-strike-over-delayed-pay-rise-1.16969>

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Geographical Indication tag for basmati's fragrance: the battle won in the US but lost in India

The name 'basmati' is specific to the varieties of fragrant specialty rice (*Oryza sativa* L.) grown and maintained for centuries by farmers in the states of north India and some parts of Pakistan in the areas close to foothills of the Himalayas. 'Basmati' is not a generic name and therefore, cannot be used to describe another product, even if it is almost similar to the Indian basmati. Also, India wants

to safeguard the typical identity of basmati under the Geographical Indication (GI) tag. This certifies not only the geographical origin of a product, but also confirms its natural definition (adherence to specific quality standards). Also, GI does not allow its production beyond the geography of the tag for the product. India is facing obstacles in getting it registered in country's GI Registry (GIR).

First, it is a cross-border issue. Interests of India and Pakistan are not always the same. Also, there is no such provision under the premises of WTO agreement. Secondly, in the past, India has been dragged into litigation with the US Patents and Trademark Office, over granting patent of basmati to the Texas-based US seed company Rice Tec, for novel rice lines whose grains had qualities similar

to Indian basmati¹. This case has now been settled for the major issues. Thirdly, protection of interests of basmati growers by the state governments within the country² as was experienced in a case filed for registration for protection of basmati grown in Madhya Pradesh under GI tag. And lastly, repeated revisions of the definition of basmati rice have hindered its claim for the GI tag. GI was required to maintain quality and sanctity of the name 'basmati' according to its natural definition. The improved varieties (evolved varieties/cross breeds) such as Basmati CSR 30 and Basmati Pusa 1121 were not named 'basmati' for many years because these could not fulfil the natural definition of basmati. However, the evolved varieties could express quality parameters closer to basmati and captured a lion's share in the global market. The definition of basmati was changed twice to notify them under the name 'basmati'. Presently, seeds of Taroari Basmati (traditional Basmati), Basmati Pusa 1121, Pusa Basmati 1 and Pusa Sugandha-5 (evolved basmati) grown at Indian Agricultural Research Institute (IARI), New Delhi and Directorate of Rice Research (DRR), Hyderabad during *kharif* (rainy season) 2011 and *kharif* 2012 have been analysed for quality parameters: hulling%, milling%, head rice recovery%, kernel length, kernel

breadth, length: breadth ratio, volume expansion ratio, water uptake, kernel length elongation after cooking, elongation ratio, alkali spreading value, amylose content and gel consistency. At IARI, only three quality parameters, i.e. kernel length elongation after cooking, elongation ratio and amylose content were significantly higher than those at DRR. However, different patterns of expression of quality parameters could not establish superiority of the quality of basmati rice during sensory evaluation by a panel of experts. The sensory evaluation was based on appearance, cohesiveness, tenderness on touching and chewing, taste, aroma and elongation ratio of rice. Observations of the panel were used to estimate overall acceptability of basmati varieties. During sensory evaluation no difference in quality between the grains of basmati grown in GI and beyond GI was found. Also, Madhya Pradesh, far away from GI region, exported about 400,000 tonnes of basmati produced by the farmers there during 2009. Therefore, on 31 December 2013, the Indian GI Registry at Chennai allowed a plea of Madhya Pradesh for its basmati producers to be covered under the GI tag. So the legal battle won in the United States was lost at home. It will be easier to get protection for 'traditional basmati' under the GI tag according to

the norms of the WTO agreement. Such GI protection for 'traditional basmati' will not go against the interest of farmers who export quality rice cultivated beyond GI. Furthermore, the spontaneous local political pressure for the demand of patents under WTO agreement should not be allowed to vitiate the premise of GI.

1. Jayaraman, K. S., *Nature*, 1998, **391**, 728.

2. <http://shivrajsinghchouhan.org/newsdetail.aspx?id=647>

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Conventional Indian soil testing: need for major change

The Green Revolution made India self-reliant in food grain production¹. For green revolution, chemical fertilizer input was intensified for increasing the yield² and it is a well-known fact that our applied research generally focuses on soil physical and chemical components to maintain or improve soil health for higher productivity. However the soil biological components, specifically soil microbial diversity is generally overlooked^{3,4} as is evident from the fact that almost no Krishi Vigyan Kendra or ICAR soil testing laboratories, which are the proximity centres for any farmer, focus on soil metagenomics. Adequacy of soil physical and chemical properties to improve the yield led to neglect of soil microbial functions⁵. There is a rising urgency to understand soil microbial

characters⁶ and their function to sustain the soil life process and productivity.

Modern techniques such as phospholipid fatty acid analysis help us get insight into the microbial characteristics and community composition for a particular soil environment at very nominal cost^{7,8}. If at least this method is adopted by government soil testing laboratories, we may maintain a record of changes of soil microbial communities due to intensified agriculture and possibly it will guide the scientific community to understand the soil biological function more specifically and efficiently. Studies of metagenomics have been initiated 16 year ago⁹, but the approach is not geared up in applied sense and Indian farmers are very much aware of physico-chemical status of their soils as com-

pared to biological status. Studies on soil metagenomics and microbial diversity, if strengthened through all Indian soil testing laboratories, will be prospectively beneficial for better understanding of soil functions and its relation with microbial diversity more precisely. Moreover soil microbial studies will alert any undesired soil health impacts, as most of soil ecosystem functions are governed by soil microbial dynamics¹⁰.

Inventions of novel biomarkers facilitate scientific community to get an insight into soil microbial life¹¹. Holistic approach is needed to study the soil biological function in changing Indian soil scenario. And if soil microbial life terminating process continues without evaluation through intensive agriculture, then the consequences would be agonizing