

Where do Indian chemists publish their best research?

A bibliometric analysis of a Russian journal¹ reported that: 'Today many Russian researchers prefer to publish their best works in foreign (international) journals, leaving less important results for home journals. Thus even as data depositaries (*sic*), Russian journals became less important and lag behind world's leading journals in rating.'

One of us (P.P.), who has been editing an *Indian Journal of Chemistry* for several years, has noticed that precisely the same finding applies to Indian researchers in the subject area of chemistry. Indeed a bibliometric analysis of the *Indian Journal of Chemistry – B* (work in progress) seems to confirm this. The present exercise has been taken up to quantify the extent to which the 'best' work is shared between international journals and Indian national journals. Toward this end, the exergy parameter which has been recently proposed² is used to compare the relative shares.

The Web of Knowledge (<http://apps.wofknowledge.com/>) allows structured searches to be done. The methodology adopted is simple. All the papers which show at least one Indian institution in the

address for the year 2000 (publication window) and are in the subject area of chemistry are taken and their citations during the window (2000 till date: searches done on 20 April 2011) are counted. The Web of Knowledge also displays the top 100 source titles and for each source title (mainly international and a handful of national journals), the number of papers (P) in 2000 and the number of citations (C) collected during the citation window (2000–11) have been used to compute the exergy value², $X = (C/P) \times (C)$. The total ΣX for international and Indian journals is then added separately. (It is presumed that X has an additive property which gives a ΣX which is more meaningful in this context than using additive values of P and C taken separately to compute an X' , which is given by $(\Sigma C/\Sigma P) \times (\Sigma C)$.) The values of ΣP , ΣC and ΣX for the international journals and national journals are compared. The same exercise is repeated for all papers published in 2005 (the publication window is for the year 2005 and the citation window is now from 2005 till date: search done on 20 April 2011).

The results are summarized in Table 1. From 2000 to 2005, if attention is confined to the top 100 source titles in which Indian research in chemistry appeared according to the Web of Knowledge database, although in paper count (i.e. in quantity terms), the share of the Indian journals dropped only from 27.43% to 21.20%, the citation share dropped from 7.77% to 4.30%. It is believed² that the energy-like term (called exergy) obtained from the product of C/P (which is a quality term) and C (a term that has both quality and quantity attributes) is the best single scalar indicator of scientific effort. We can see from Table 1, that in exergy terms, the share of Indian journals dropped from 1.52% to 0.70%.

The best research in chemistry from India is increasingly appearing in international journals. While this is a cause for celebration, a worrying issue is whether there is any future for Indian journals in this competitive environment.

Table 1. In exergy terms, international journals increased their share of 'best' Indian research in chemistry from 98.48% in 2000 to 99.30% in 2005

Publication window		Indian		International		Total	
			%		%		%
2000	P	932	27.43	2,466	72.57	3,398	100.00
	C	3,928	7.77	46,629	92.23	50,557	100.00
	X	21,715.56	1.52	1,404,424.381	98.48	1,426,139.94	100.00
2005	P	1,151	21.20	4,278	78.80	5,429	100.00
	C	2,813	4.30	62,681	95.70	65,494	100.00
	X	9,184.516	0.70	1,304,755.128	99.30	1,313,939.64	100.00

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GATE-qualified candidates and NET–CSIR–UGC lectureship examination

The UGC–CSIR conducts lectureship (LS)–Life sciences examination every year. Candidates who score high marks in the CSIR–UGC–NET examination are chosen as JRFs (Junior Research Fellows). Candidates who qualify as JRFs are eligible to be considered for both

CSIR/UGC fellowship and the assistant professor position in the universities. Candidates at the next level are chosen for the NET–LS. Cut-off marks are much higher for the Shyama Prasad Mukherjee Fellowship (SPMF)/JRF than the NET–LS. CSIR considers the top hundred

GATE-qualified candidates for SPMF. It also considers candidates with valid GATE score for the JRF–GATE fellowship. On the other hand, qualifying as NET–LS guarantees neither an assistant professor/scientist position nor a fellowship.

Candidates who have obtained a PhD degree as per the UGC (Minimum Standards and Procedure for Award of a PhD Degree) regulations (2009) are exempted from the requirement of NET-LS/SLET. However, certain central universities prefer candidates with both PhD degree and the NET-LS certificates for recruitment and appointment of Assistant Professors. This poses a threat to the PhD degree holders with high GATE score. In fact, they were permitted to enroll into the PhD programme – as JRFs – based on the high scores they had obtained in the GATE. Unfortunately, after obtaining their PhD degree, they find themselves ineligible to be considered for Assistant Professor positions in certain central universities. Of relevance, both GATE and NET-CSIR-UGC are conducted by recognized – IITs-IISc/CSIR-UGC – bodies.

Both the examinations test the intellectual capacity of candidates with MSc degree. Evidently, CSIR/UGC permits the GATE qualified candidates to be considered for JRF-GATE/SPMF, suggesting that they recognize the GATE score. Given this, why would state/central universities prefer candidates with NET-LS certificates over GATE qualified candidates? It is unreasonable to assume that NET-LS qualified candidates are better than the GATE qualified candidates.

To circumvent this problem, CSIR-UGC can consider the following options: (i) Exempt PhD holders with GATE score above 90 or a rank below 200, from appearing from the LS examination. Since qualifying in the NET-LS examination guarantees neither an assistant professor/scientist position nor a fellowship

(unlike JRF/SPMF/JRF-GATE schemes), CSIR-UGC can consider exempting PhD holders (with MSc degree (55%) obtained after September 1991 plus GATE score above 90 or a rank below 200) from taking lectureship examination. Further, CSIR-UGC can instruct universities that PhD/MSc holders who have cleared GATE with score above 90 or obtained a rank below 200 are eligible to be considered for Assistant Professor positions. (ii) In the near future, CSIR-UGC/IITs/IISc should consider conducting one national eligibility test for research/lectureships.

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Hand sanitizers

Dipshikha Chakravorty¹ is of the hypothetical opinion that hand sanitizers kill 99.9% of the germs and their pathogenic remnants or pathogen-associated molecular patterns (PAMPs) remain in hand, which is a major concern for causing bowel syndrome when consumed.

Hand washing is an important means of preventing the spread of infection if practised in the right way using proven detergents. Yet recent studies indicate that lack of improper hand washing still contributes significantly to disease transmission in situations wherein availability of potable water and time is the main constraint. In such cases hand sanitizers are most useful to reduce the microbial load, thus controlling the rate of infection. In this context, the use of alcohol-based hand sanitizers by improving accessibility and providing periodic hand hygiene training sessions to users is strongly recommended for decreasing the infections².

The period of exposure of microbes to the hand sanitizers, their interaction and finally their probable modifications on microbial load are crucial in determining their disease-causing ability. In general, if PAMPs are exposed to sanitizers they may be denatured by the virtue of their alcohol content and might lose their dis-

ease-causing potency. Further, alcohol-based hand sanitizers contain mainly water and alcohol, which are completely safe if the traces are swallowed. It is advised that hand sanitizers should be used by children under the supervision of elders to ensure proper usage³. In case PAMPs are potent enough after treating with hand sanitizer, before they reach the bowel they are exposed to rigorous conditions while passing through the upper gastrointestinal tract where most of the microbes are attenuated/denatured by the action of varied pH and gastric secretions. Further, if the bowel endothelial barrier is intact, bacterial/PAMPs antigen may not gain access to antigen presenting cells, thus limiting the cause of irritable bowel syndrome or any other inflammatory conditions. Hence during impaired bowel endothelial barrier, the chances of infections are more⁴. But, it has been shown that multifactorial intervention emphasizing alcohol-based hand sanitizer use at home reduced transmission of gastrointestinal illness within families with children during child care⁵.

Hence such hypothetical reports without scientific justification and valid scientific/clinical studies are detrimental for public health and hygiene maintenance.

In this context, it is apt to quote the instance of a retracted article published by *Lancet*, linking MMR vaccines with autism, which misled the public from getting vaccinated for years and also halted further studies on MMR vaccine. Thus the merits of hand sanitizers should not be overlooked in light of such hypothesis.

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