

University (NTU) and Taipei Medical University (TMU) carried out these studies. Cytotoxic dolabellane diterpenes and terpenoids are isolated from formosan soft corals³⁻⁵, furan derivatives and sesquiterpenoids from sponges^{6,7}, and bioactive compounds from algae^{8,9}. Among these identified compounds, the toxicity property of some has been investigated in various cancer cell lines. We have worked towards identifying bioactive compounds from corals and sponges around Taiwan. New steroids from the formosan soft coral were also isolated and its anti-inflammatory property has been investigated¹⁰. Another compound lemnalol was isolated from formosan soft coral *Lemnalia cervicorni*. Our team found that lemnalol has anti-inflammatory and analgesic properties¹¹. All these bioactive compounds are ready for any further clinical trial to establish their potential use as drugs against disease. The Government of Taiwan has formulated a strategy to coordinate clinical trials. Government-funding agencies (such as National Science Council and National Health Research Institute) are implementing a strategy to coordinate national policy to synergize the efforts of clinical trials in order to turn them into possible medical use.

India also has more than 8000 km of coastline and possesses an exclusive economic zone of over 2 million km² of the

oceans. Oceans adjacent to India also offer abundant resources for drug candidate molecules which remains largely unexplored. Several research institutes like National Institute of Oceanography, Goa; Marine Aquarium and Research Centre, Digha; CSIR Madras Campus as well as IIT, Chennai and IIT, Mumbai are located near the coastline. Several universities like Vidyasagar University, Midnapore; Utkal University, Bhubaneswar; Andhra University, Visakhapatnam; Anna University, Chennai; Cochin University, Cochin; Goa University, Goa; Mumbai University, Mumbai, are also located along the coast and are aiming to carry out marine biotechnology projects. Therefore, these institutes and universities should initiate drug discovery projects. Development of drugs is particularly challenging because of diversity of marine aquatic species. The Government of India and related agencies should promote, encourage and support these projects to discover the huge amount of unexplored drug candidate molecules from the oceans.

1. Wallace, A. R., *Island Life*, MacMillan, London, 1880.
2. Shao, K. T., *Eng. Environ.*, 2000, **9**, 21–34.
3. Duh, C. Y., Chia, M. C., Wang, S. K., Chen, H. I., El-Gamal, A. A. H. and Dai, C. F., *J. Nat. Prod.*, 2001, **64**, 1028–1031.

4. Sung, P. J., Su, J. H., Duh, C. Y., Dai, C. F. and Sheu, J. H., *J. Nat. Prod.*, 2001, **64**, 318–323.
5. Sheu, J. H., Wang, G. H., Duh, C. Y. and Soong, K., *J. Nat. Prod.*, 2003, **66**, 662–666.
6. Shen, Y. C., Prakash, C. V. and Kuo, Y. H., *J. Nat. Prod.*, 2001, **64**, 324–327.
7. Shen, Y. C., Lu, C. H., Chakraborty, R. and Kuo, Y. H., *Nat. Prod. Res.*, 2003, **17**, 83–89.
8. Chen, C. Y. and Chou, H. N., *Food Res. Intern.*, 2002, **35**, 715–720.
9. Lu, C. K. and Chou, H. N., *Proc. 70th Ann. Jap. Soc. Fish Sci.*, 2002, **68**, 1593–1596.
10. Chang, C. H., Wen, Z. H., Wang, S. K. and Duh, C. Y., *Steroids*, 2008, **73**, 562–567.
11. Jean, Y. H. et al., *Eur. J. Pharm.*, 2008, **578**, 323–331.

CHIRANJIB CHAKRABORTY*
CHI-HSIN HSU
ZHI-HONG WEN
CHANG-YIH DUH
CHAN-SHING LIN

*Department of Marine Biotechnology and Resources,
College of Marine Science and Division of Marine Biotechnology,
Asia-Pacific Ocean Research Center,
National Sun Yat-sen University,
Kaohsiung, Taiwan
e-mail: drchiranjib@yahoo.com

The earliest attempt for a national bibliography on S&T

Scientific publication seems to provide the best available basis for measuring the scientific activities of a country. In India, the need for a bibliographical periodical covering all publications on science and technology (S&T) has been felt for a long time due to the coverage of Indian literature on S&T being inadequate and also delayed in the international abstracting periodicals. B. S. Kesavan, the first Librarian of the National Library, Calcutta took initiatives to publish *Indian National Bibliography* from 1958 for bibliographical control of books and other publications produced in the country. After joining the Indian National Scientific Documentation Centre (Insdoc, now National Institute of Science Communication and Information Resources), New Delhi as first Director in the early

1960s, Kesavan decided to bring out another publication of a similar nature – an abstracting periodical covering Indian contributions on all branches of S&T appearing as research papers, correspondences, conference papers, reports, patents, standards, etc. Accordingly, Insdoc started a monthly abstracting periodical under the title *Indian Science Abstracts (ISA)* from January 1965.

However, this was not the first attempt to publish a bibliography covering the entire S&T literature of the country. Earlier, before the independence of the country in the mid-thirties, one of the premier science academies of the country made the first successful attempt to produce such a bibliography. The National Institute of Sciences of India, Calcutta (NISI, now Indian National Science

Academy, New Delhi) was formally inaugurated at the University of Calcutta on 7 January 1935 and started functioning with its headquarters at the Asiatic Society of Bengal, 1 Park Street, Calcutta. The NISI, within a month of its existence, decided¹ to publish an annual bibliography under the title 'Indian Science Abstracts' with subtitle 'being an annotated bibliography of science in India'. It included abstracts of all papers on S&T published in India or abroad on work done in India or based on Indian materials and papers dealing with problems specifically related to India.

The bibliography was published annually in two parts and abstracts were arranged tentatively under nine subject headings. To ensure continuity under each heading and to facilitate reference,

CORRESPONDENCE

Table 1. Number of articles abstracted in *Indian Science Abstracts*, 1935–1939

Subject	1935		1936		1937		1938		1939	
	Part I	Part II	Part I	Part II	Part I	Part II	Part I	Part II	Part I	Part II
General	–	12	–	–	–	–	–	–	–	?
Mathematics	27	14	80	–	86	–	104	–	84	?
Physics	62	138	293	–	189	18	252	7	240	?
Chemistry	119	253	–	307	–	295	–	233	259	?
Engineering	26	–	–	–	–	–	–	–	–	?
Geology	218	18	177	–	316	–	–	295	–	?
Botany	119	248	–	318	286	–	303	–	297	?
Zoology	202	332	484	–	–	510	566	–	606	?
Physiology	96	27	132	61	–	283	311	–	278	?
Total abstracts	869	1042	1166	686	877	1106	1536	535	1764	?
Total pages	170	194	210	139	165	199	289	80	325	?

the abstracts dealing with each subject were given a separate pagination with the serial number of the heading preceding it. The abstracts in each section were arranged alphabetically and numbered serially. The general editor was Bains Prashad, who was assisted by eight associate editors for these nine subjects, namely N. R. Sen – Mathematics, M. N. Saha – Physics, J. C. Ghosh – Chemistry, E. Spencer – Engineering, A. M. Heron – Geology, P. K. Parija – Botany, B. Prashad – Zoology, A. D. Stewart – Medical, F. Ware – Veterinary. At the meeting of the council of the academy, held on 4th January 1936, J. Taylor was appointed associate editor for medical subjects in place of A. D. Stewart who left India. It was printed in Calcutta by P. Knight at the Baptist Mission Press, 41A, Lower Circular Road (now Acharya J. C. Bose Road). We have seen all parts of the bibliography (except part II of 1939, if existed), details of which are given in Table 1.

It is the first attempt made to publish abstracts separately from the scientific publications of a country. Unfortunately, it lasted only for five years, i.e. first published as part I of 1935 and terminated with part II or part I (?) of 1939. We have searched for all the parts of ISA published by NISI in about a dozen major libraries in Kolkata, but in no place could we find the 2nd part of 1939. By analysing the contents it revealed that the part I of 1939 included abstracts of all subjects except geology. These force us to think that either all available abstracts of 1939 were published in a single part (part I) or the scheduled part II of 1939 was never published. Although Kesavan states that the publication of the bibliography had ceased due to shortage of

manpower and resources, NISI was compelled to discontinue² the publication for another reason. This was after considering the circular issued by the then Department of Commerce, Government of India regarding economy in the use of paper during the Second World War period. The circular/letter actually suggested that the academy might discontinue certain periodical publications during the period of the World War II.

The bibliography created much enthusiasm among the Indian scientific community. The publication was acknowledged and appreciated in the pages of *Current Science*³ and *Science and Culture*^{4,5}. *Nature*⁶ was also prompt to acknowledge and review the bibliography and comment ‘... to those who look upon India as a backward country this publication will come as a revelation, not merely from the volume of the work produced but also by the high standard to which much of it attains. In a country so predominantly agricultural, it is gratifying to find that so much attention is being paid to biological subjects. Nearly one half of the abstracts come under the heads of botany, zoology and physiology, the latter including veterinary and medical subjects’. The publication of this bibliography is an excellent example of capabilities of Indian scientists in regard to showing India’s contribution in world of science for the first time as well as to chronicling those publications.

In the ‘Introduction’ of the first issue of ISA-1965, Kesavan acknowledged the pioneering contribution of NISI in bringing out the literature on S&T in one place for the period 1935–1939. After publication of ISA by Insdoc, Seshachar, in his review⁷ on ISA discussed the need, importance and salient features of this

new abstracting service but he failed to mention its difference with the earlier ISA. Unfortunately, he supplied the total number of abstracts covered in the first issue of ISA-1965 as 936 instead of 963. In 1994, Bhattacharya and Kar made a study⁸ of 187 Indian secondary services in S&T. In their analysis, the first indexing and abstracting periodical in India was published in 1943. Most probably, they were not aware about this bibliography published during 1935–1939. ISA is now considered as a major contribution of Insdoc for bibliographical control of Indian literature on S&T which may be considered as a revival and continuation of the ceased ISA first introduced by NISI during the pre-independence era.

1. NISI Annu. Rep., 1935, p. 5.
2. NISI Annu. Rep., 1942, p. 4.
3. *Curr. Sci.*, 1936, **5**, 16.
4. *Sci. Cult.*, 1936, **2**, 97–98.
5. *Sci. Cult.*, 1937, **3**, 232.
6. *Nature*, 1936, **138**, 543, 916.
7. Seshachar, B. R., *Ann. Lib. Sci. Docum.*, 1965, **12**, 32–33.
8. Bhattacharya, P. and Kar, D. C., *Lib. Rev.*, 1994, **43**, 29–38.

ACKNOWLEDGEMENT. We thank Subir K. Sen for help.

SOUMEN MONDAL¹
HARI PRASAD SHARMA^{2*}

¹*Bhangar High School,
Vill. + P.O. Bhangar,
24 Parganas (S) 743 205, India*
²*Bengal Engineering and Science,
University, Shibpur,
Howrah 711 103, India*
**e-mail: sharma_hp@hotmail.com*