

**GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA**

UNSTARRED QUESTION NO:3488
ANSWERED ON:18.03.2015
DRUGS FROM SEA
Solanki Dr. Kirit Premjibhai

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) the salient features of the 'Drugs from Sea' research programme;
- (b) the funds allocation and utilization for the programme under the 12th plan year wise; and
- (c) the details of the research projects currently being funded under this programme?

Answer

MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES (SHRI Y.S. CHOWDARY)

(a) The following major objectives are envisaged under the National Programme on 'Development of Potential Drugs from Sea' during 12th plan period (2012-2017).

To identify bio active substances (leads) from marine biota (in coordination with multiple labs, from national research institutes and universities), synthesis of new scaffolds and their modifications for the new drug development

Identification of active principles from marine flora, fauna, and microbial biota, their chemical synthesis, SAR for the new drugs development

Optimization of hits/leads from previous plan

Synthesis of new analogs of marine leads and their bio-evaluation (against inflammation, bacterial/fungal and GPCRs)

Setting up new in vitro and in vivo screens (Inflammation, bacterial/fungal and GPCRs)

Development of new hits/leads for various disorders.

In vitro screening of ~300 marine extracts / fractions / single molecule.

Confirmation of the in vivo efficacy.

Pharmacokinetics, Pharmaceutical, Safety Pharmacology and Toxicity studies (preclinical studies with active samples/compounds)

Filing of IND of active samples identified for drug development.

Clinical trial of phase I of samples/compounds identified for drug development.

Clinical trial of phase II of samples/compounds identified for drug development.

Collection and preservation of samples from deep sea.

Extraction of bioactive compounds and initial screening.

Transfer of potential candidates to the core group of Drugs from the Sea programme for further screening and testing.

To address related issues.

(b) Total funds allocated for the Drugs from Sea research programme under 12th plan period is 9623.646 lakhs. Year-wise allocation and utilization as detailed below.

(Rupees in Lakhs)

Financial Year	Funds Allocation	Funds Released & Utilized
2012-13	1488.276	521.344

2013-14	2086.16	136.500
2014-15	2361.044	513.411
2015-16	1922.284	
2016-17	1765.882	
Total	9623.646	1171.255

(c) THE DETAILS OF THE RESERACH PROJECTS COURRENTLY BEING FUNDED UNDER THIS PROGRAMME ARE AS BELOW:

S.No.	Project Title (Science Component)	Participating Organization
1.	Synthesis of marine natural products: Iriomoteolide-3a, Cladospolide-D, Barrenazine A & B and their analogues	Indian Institute of Chemical Technology, Hyderabad
2.	Marine natural products aspergillide B and C and their synthetic analogues as new chemical entities for human health care	Indian Institute of Chemical Technology, Hyderabad
3.	Total Synthesis of solomonamide and analogue synthesis of azumamaide E: The marine originated cyclic peptides for human health care	Indian Institute of Chemical Technology, Hyderabad
4.	Synthesis of marine bioactive peptides/biomolecules and their analogs	Indian Institute of Technology Kanpur, Kanpur
5.	Accessing liphagal and its analogues through polyene cyclization	National Chemical Laboratory, Pune
6.	Design and synthesis of 2H-azirine containing marine natural products and their analogs for antimicrobial and antifungal activity	Indian Institute of Chemical Technology, Tarnaka, Hyderabad
7.	Amphidinolactone A and its synthetic analogues as new chemical entities for human health	Indian Institute of Chemical Technology, Tarnaka, Hyderabad
8.	Identification of novel anti-cancer agents based on marine illudalanes alcyopterosins	National Chemical Laboratory, Pune
9.	Design and Synthesis of Novel Dolastatins, Azumamides and Microsporin A Analog: a Quest for Anticancer Drugs.	Central Drugs Research Institute, Lucknow
10.	Synthesis and bioactivity Screening of Marine Indole Alkaloids and related analogues	National Institute of Science Education and Research, Bhubaneswar
11.	Synthesis of Marine Natural Product- Based Compounds of Potential Biological Significances	Institute of Life Sciences, Hyderabad
12.	Development of Potential Drugs from Ocean "Collection and fractionation of the identified leads such as NIO-905-A002 (F003, 4) and NIO-968 (CNS) NIO-970",	Central Drugs Research Institute, Lucknow
13.	"Chemical & pharmacological evaluation of some Indian mangrove lichens"	College of Pharmaceutical Sciences, Andhra University, Visakhapatnam
14.	"Marine anaerobic bacterial diversity for the production of antimicrobials"	Centre for Environment, Institute of Science & Technology, JNT University Hyderabad
15.	"Development of antimicrobial, anti-inflammatory and anticancer	Central Drug Research Institute, Lucknow-226001, Uttar Pradesh

- agents from the marine-organisms Central Marine Fisheries Research and micro-organisms" Institute, Cochin
- 16 "Search for Novel Antimicrobial Central Drug Research Institute, Lucknow. and Anticancer Metabolites from CFTRI, Mysore Marine"
- 17 "Bioprospecting and taxonomic National Institute of Interdisciplinary studies of marine microorganisms Science and Technology, Thiruvananthapuram, in search of novel anti-infectives" Kerala IMTECH, Chandigarh
- 18 "Identification of eight obligately School of Environmental Studies, Jadavpur halophilic cyanobacteria of the University, Kolkata Sundarbans and molecular Indian Institute of Chemical Biology, characterization of antimicrobial Jadavpur, Kolkata compounds there from"
- 19 "Isolation and characterization Sri Venkateswara University, Tirupati of bioactive compounds from marine endophytic fungi of Nellore coast in Andhra Pradesh"
- 20 "Comparative assessment of marine Centre for Biosciences, Central University macroalgae, Ulva, Graciliaria and of Punjab, Mansa Road, Bathinda, Saragassum from Indian region for anticancer natural products.
- 21 "Discovery of Antimicrobial and Biocontrol and Microbial Metabolites Anti-inflammatory compounds from Lab, Centre for Advanced Studies in Botany, marine actinomycetes and halophilic University of Madras, Marainalai Campus, bacteria. Guindy, Chennai
- 22 Design and Synthesis of Chemical Dr. Reddy's Institute of Life Sciences, Library Based on Anti-Cancer Marine University of Hyderabad Campus, Gachibowli, Natural Product Diazonamide A. Hyderabad.
- 23 "Synthesis and Bioevaluation of CSIR-Central Drug Research Institute, Chemical Libraries of B-Carboline BS-10/1, Sector 10, Jankipuram extension, Based Mimics of Marine Natural Lucknow Products.
- 24 "Synthesis of Fascaplysin Analogues Medicinal and Process Chemistry Division, as Possible Anticancer Agents. CSIR- Central Drug Research Institute, Sitapur Road, Lucknow
- 25 "Generation of Compound Library School of Chemistry, University of Based on Bicyclic Acetal Scaffold Hyderabad, Central University, in Search of Potential Anti-Cancer Gachibowli, Hyderabad. Agents.
- 26 "Design and Synthesis of Indole Department of Chemistry, Indian Institute Based Marine Natural Product Like of Science Education and Research (IISER) Lead Compounds: Quest for Anti- Bhopal, Bhauri, Bhopal-462066 cancer, Anti-bacterial, Anti-fungal and Anti-inflammatory Agents.