

## CORRESPONDENCE

region, where green algal beds (*Ulva* sp., *Enteromorpha* sp., *Padina* sp., *Caulerpa* sp.) dominated (Figure 1 a and c). The mid to high tide zone was devoid of *A. oculifera* (Figure 1 d). However, on 8 January, mass mortality of *A. oculifera* (219 dead adult individuals within 500 m stretch) along with macrophytes (majorly *Sargassum* sp.) was observed in the entirely sandy high tide zone of the same segment (Figure 1 e–g), although January is known to be favourable for adults of the species. Water quality (e.g. pH, salinity, DO, BOD, nutrients, PHc) along the near-shore region and sediment chemistry (e.g. heavy metals and PHc) in the intertidal zone did not show any significant values which could harm the biota in the study area. We also analysed the atmospheric and other oceanographic parameters such as wind speed, wave height, tidal elevation and tide-time in the region for over a period of three days (6–8 January 2017) to understand the cause behind the event. We observed an abrupt change in weather marked by sudden increase in wind speed and wave height, coupled with high tide during late evening of 7 January (Figure 1 h). Generally, mollusks are not strongly attached to the substrata while foraging<sup>5</sup>. *Aplysia* has night-time feeding habit due to energetic benefit<sup>6</sup> or to avoid direct exposure to sunlight<sup>4</sup>. Considering the nocturnal activity which has coincided with abrupt

change in weather, *A. oculifera* was washed-off along with macrophytes (majorly *Sargassum* sp.) to sandy supralittoral zone (unsuitable habitat) (Figure 1 e) on 7 January 2017. The next morning (8 January 2017) was calmer with low wave height; therefore, water level was not sufficient to bring it back to its suitable habitat. This caused prolonged exposure to direct sunlight in supralittoral zone which led to desiccation and subsequent mortality of *A. oculifera*. No other faunal deaths have been observed in the area.

The region in question has patchy corals. *A. oculifera* feeds on macrophytes. Absence of this sea hare can lead to an uncontrolled growth of macrophytes, which in turn may reduce the viability of corals in the region. Although the present report is based on short-term observation of weather impact, repeated observations of such events can be useful in evaluating how weather and climate change impact coastal biodiversity.

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**ACKNOWLEDGEMENTS.** We thank the Director, CSIR-NIO, Goa and Scientist-in-Charge, CSIR-NIO, Mumbai for providing the necessary facilities. We also thank ESSO-Indian National Centre for Ocean Information Services, Hyderabad and Fisheries Research Station, Junagadh Agricultural University, Port Okha, for providing oceanographic and atmospheric data respectively. This is CSIR-NIO contribution number 6138.

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## DBT Star College Scheme: a positive intervention in capacity building in colleges

India is aiming to be a global leader in the field of science and technology (S&T) and all the stakeholders are already at work to bring about a paradigm shift in science education. Technology Vision 2035, an official document prepared by the Government of India (GoI) and associated agencies, has clearly specified that S&T is going to play an important role in the progress of our country. Changes are happening at all levels of teaching. Quality interventions at all steps of the educational ladder, right from the primary level, are taking place. We are a nation with the youngest population, where a major percentage of the population opting for higher educa-

tion is studying at the undergraduate level. So the role of research and quality of science education is being increasingly recognized at the college level.

The Department of Biotechnology (DBT), GoI has always played a pivotal role in the implementation of key government initiatives and taking them forward in the right direction with reasonable success. Recognizing colleges as the foundation stone of the science education pyramid, the department has initiated the DBT Star College Scheme that seeks to build research capacity by giving students an opportunity to gain vital research-related skills and concept-building by DIY (do it yourself). The

programme has been initiated by inviting ideas from various people and brainstorming by the proponents and executors of the scheme. DBT gave the go-ahead to the scheme after understanding the fact that funding colleges was in the public interest, as it will give science students a deep understanding of the world and develop their critical faculties that are required to work in any scientific arena. The scheme has also helped the faculty to experiment more in classrooms, as earlier students were engaged in the learning process that was confined to the walls of classrooms with lecture courses that offer almost no novelty, no monitoring, and little support and

personal attention. The scheme has been instrumental in capacity-building of all the stakeholders who are the components of science teaching, research and learning, and have given boost to students, faculty and the non-teaching staff. After the advent of the scheme, the science laboratories and the way experiments are conducted in them have changed considerably. Library and teaching aids have also been developed to make science more lively.

Students have primarily benefited by this intervention of DBT, as the grants sanctioned have been used in colleges to improve the basic infrastructure in terms of having sophisticated instrumentation facilities that otherwise were not available in colleges. Many colleges have procured fluorescence microscopes, UV spectrophotometers, PCR machines, capacitors and HPLC units. Such instruments are now available to students for carrying out various experiments. Besides, the grants are used for procuring chemicals and glassware for carrying out studies and experiments that are not part of the university curriculum, but are crucial to elucidate and make students understand some critical aspects of scientific principles. There is no more sharing of equipment, glassware and other paraphernalia as recurring expenses are easily met with the grant received from DBT.

The students are also given experiential learning through visits to various industries, S&T institutes and research laboratories. This helps them understand applications of S&T in industry and also familiarize them with various career options into their chosen scientific fields. Besides the experiential learning, students of natural sciences are taken to

field, natural vegetation zones and other interesting ecosystems. Plant explorations and study of natural flora and fauna aim to look at bioresources and bio-prospecting. The mandate of the scheme is also to have crosstalk between the various departments and foster an interaction between faculty and students. This is being achieved by involving and engaging students with diverse interests in short-term research projects, and to build a highly diverse and inclusive scientific workforce. These projects have laid the path for students to get an idea about the method of science by thinking and proposing a hypothesis, designing an experiment, analysing the data and drawing conclusions. Almost every student of science is involved in some activity where the scheme is implemented. Besides, the Summer and Winter Schools, where students from various institutes participate, promotion of networking between the institutes. Students also get an opportunity to attend various other programmes of DBT through their colleges. Seminars, lectures and workshops are conducted by scientists to enlighten and train the students. Inspiring personalities who have made significant impact are invited to deliver talks and conduct panel discussions. This helps students take charge of their learning. The National Assessment and Accreditation Council (NAAC) ratings also suggest a close relation between the DBT Star College Scheme and the grade. The role of outreach activities conducted under the aegis of the programme is a fulfilling experience for the faculty as well as students. Through these outreach programmes, they have understood the importance of social interactions as they go to schools, villages and neighbouring

areas talking and discussing about various government policies, misconceptions about vaccines and GMOs. Students start to recognize themselves as scientists. The experience that DBT Star College Scheme offers them, makes the students more likely to translate their skills into science careers.

The DBT Star College Scheme has many states of the country under its gamut. The programme covers 24 states and till now more than 90 colleges have been supported under it. As the criterion for selection as a 'Star College' is stringent and budget provision is double for the ones accorded the Star College status, colleges have to work hard to fulfil the requirements. Non-performing colleges can be removed from the Scheme if they do not fare well during the annual review process.

The scheme has still to reach some states where not even a single college has applied for the grant. Maharashtra and Tamil Nadu top the chart in terms of number of colleges that have got support till now. Students who work in projects maintain that some nominal fellowship should be given to them. Besides, DBT should be more liberal in allowing the colleges to spend the grants, so that optimum benefits can be achieved. Grant for buying non-consumables should also be revised. The programme has been a blessing to colleges that seek to excel in science teaching and learning.

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