

# Report on

## SDG 6: Clean Water and Sanitation



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## SDG 6: Clean Water and Sanitation Cleanliness Drive by NCC Cadets



## Drinking Water at AUM

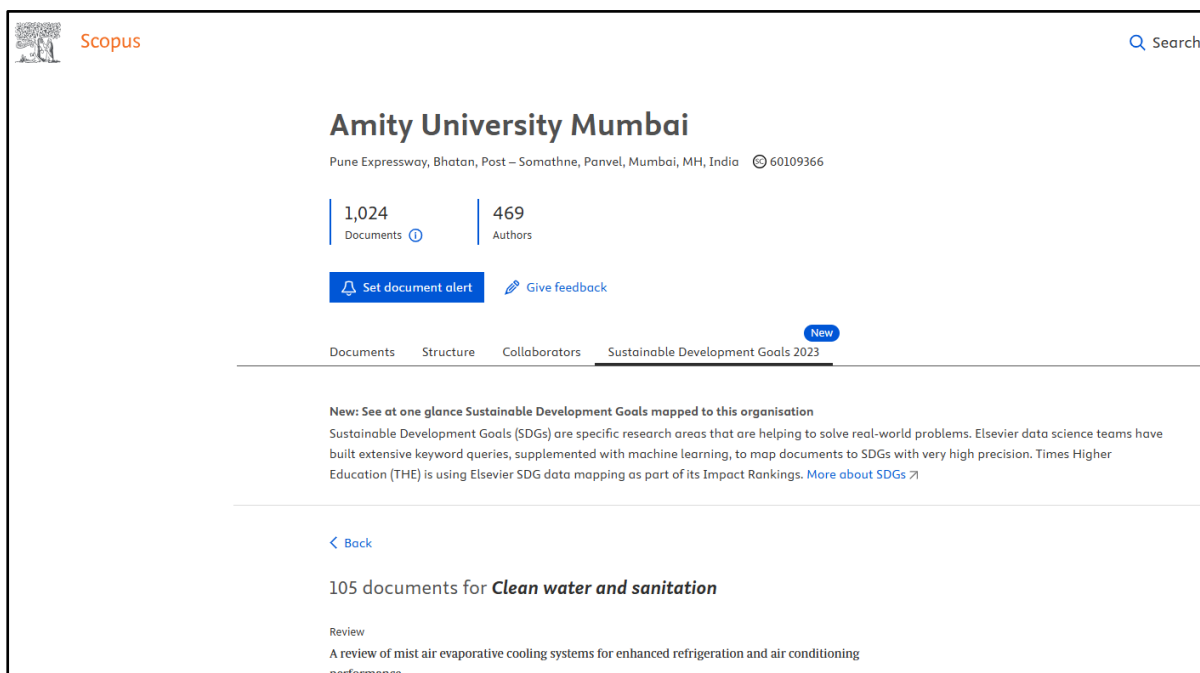




## Sanitation – Everyday Cleaning



## Publication



The screenshot shows the Scopus profile for Amity University Mumbai. At the top left is the Scopus logo. The profile name is "Amity University Mumbai" with the address "Pune Expressway, Bhatan, Post – Somathne, Panvel, Mumbai, MH, India" and phone number "60109366". It displays "1,024 Documents" and "469 Authors". There are buttons for "Set document alert" and "Give feedback". A navigation bar includes "Documents", "Structure", "Collaborators", and "Sustainable Development Goals 2023" (marked as "New"). A new announcement states: "New: See at one glance Sustainable Development Goals mapped to this organisation. Sustainable Development Goals (SDGs) are specific research areas that are helping to solve real-world problems. Elsevier data science teams have built extensive keyword queries, supplemented with machine learning, to map documents to SDGs with very high precision. Times Higher Education (THE) is using Elsevier SDG data mapping as part of its Impact Rankings. [More about SDGs](#)". A "Back" link is present. Below, it shows "105 documents for *Clean water and sanitation*". A snippet of a review is visible: "Review A review of mist air evaporative cooling systems for enhanced refrigeration and air conditioning performance".

## Recent advancements in microcystin detection: A comprehensive review of immunosensors and nucleic acid-based biosensors for efficient monitoring in drinking water and human samples

Cyanobacteria produce harmful peptides called microcystins (MCs), which are a major concern for the public's health and the water supply. The safety of the water supply depends on the accurate identification of these toxins. A state-of-the-art immunosensor that immobilizes MC variants targeted by monoclonal antibodies onto nanostructured substrates allows for fast and selective detection of MC, as discussed in this review article. Incorporating nanomaterials such as gold nanoparticles and carbon nanotubes, the detector improves the effectiveness of the signal, allowing it to identify as low as 0.05 ppb with a response time of <10 min. With its stable performance over time, this type of sensor is excellent for field deployment and ongoing surveillance. Miniaturizing the device, improving its multifaceted tracking capabilities, and testing it in real-world events are the main goals of future research. The integration of novel technologies and nanomaterials is highlighted in the review as an approach to enhance sensitivity, accessibility, and exchange of data in real-time. Miniaturized portable devices, enhancement of signals, and connection with the Internet of Things are highlighted as significant innovations in environmental monitoring and public health protection. To protect ecosystems

and public health, next-generation biosensing technologies could decrease MC contamination in water bodies

## Biofertilizer application of whole and lipid-extracted microalgal biomass generated using nutrient-supplemented wastewater

Microalgae-based fertilizers are emerging as innovative and eco-friendly alternatives in sustainable agriculture. This study evaluates the potential of *Marvania coccooides* whole biomass (WB) and lipid-extracted biomass (LEA) cultivated in nutrient-supplemented wastewater (NSWW), as biofertilizer. *Vigna radiata* was selected for the study, WB and LEA were added in soil as biofertilizers, additionally organic (OF) and chemical fertilizers (CF) were also studied. Test without any fertilizer served as control. Both WB and LEA enhanced shoot and root lengths, number of leaves, chlorophyll content, and pod number as compared to control. After 60 days of experiments, the highest shoot length was recorded in LEA ( $24.36 \pm 2.08$  cm), followed by WB ( $21.86 \pm 2.16$  cm) ( $p < 0.05$ ). LEA achieved the longest root length ( $17.83 \pm 0.20$  cm) ( $p < 0.05$ ). Pod number was maximum in WB ( $11.00 \pm 1.41$ ), followed by LEA ( $10.00 \pm 2.16$ ). Chlorophyll content was highest in WB ( $3.51 \pm 0.02$  mg·g<sup>-1</sup>), followed by LEA ( $3.09 \pm 0.06$  mg·g<sup>-1</sup>) ( $p < 0.05$ ). Soil analysis revealed improved microbial count in LEA ( $24 \times 10$  CFU·g<sup>-1</sup>) and WB ( $23 \times 10$  CFU·g<sup>-1</sup>), with enhanced organic carbon content ( $7.75 \pm 0.12$  % for LEA and  $6.35 \pm 0.13$  % for WB). Enzymatic activities showed significant improvement ( $p < 0.05$ ), including protease activity of  $3.38 \pm 0.05$  mg tyrosine·g<sup>-1</sup>·hr<sup>-1</sup> for LEA and  $2.28 \pm 0.08$  mg tyrosine·g<sup>-1</sup>·hr<sup>-1</sup> for WB and urease activity of  $1.97 \pm 0.27$  mg urea·g<sup>-1</sup>·hr<sup>-1</sup> for WB,. These findings confirm that microalgal biofertilizers enhance both *Vigna radiata* productivity and soil health.

## Responses of natural plastisphere community and zooplankton to microplastic pollution: a review on novel remediation strategies

The ubiquitous presence of microplastics (MP) in different environments has been well documented. Microplastic contamination has rapidly become a serious environmental issue, threatening marine ecosystems and human health. MP has been reported to accumulate organic pollutants associated with various microbial communities. The MP hazard is specifically serious in urban lakes, near-shore beaches, and benthic sediments. To prevent the further spread of MP and mitigate the increasing level of MP contamination, along with its associated environmental and economic concerns, it is essential to address mitigation strategies and their negative impacts. Contributed by low degradability, hydrophobicity, and sorption potential, the plastic surface acts as an important substrate colonized by several microorganisms known as the plastisphere community. Adaptive responses of the plastisphere community, MP ingestion, and surface modifications by the zooplankton provide insight into novel remediation strategies based on integrated natural community-level approaches. Zooplankton studies are extensive and encompass assessments of their abundance, biomass, distribution, and DNA meta-barcoding. Additionally, zooplankton has been utilized as an indicator in various freshwater environmental policies. Overall, employing zooplankton as an indicator in environmental policies is a vital tool for assessing the health of aquatic ecosystems and can assist in guiding management and conservation efforts. This review summarizes (i) the current literature on the estimation of MP distribution in aquatic environments, (ii) the effects of MP accumulation on the environment and its inhabitants, i.e., the interactions with marine microbiota,, (iii) addresses the bioremediation strategies with an emphasis on microbial degradation, ecological functioning and adaptive responses of marine microbes and finally, (iv) the directions of further research aiming to in situ mitigation of MP pollution. Recent advancements have focused on innovative methods such as membrane bioreactors, synthetic biology, organosilane-based techniques, biofilm-mediated remediation, and nanomaterial-enabled strategies. Nano-enabled technologies show substantial potential to enhance microplastic removal efficiency. Further investigation is necessary to develop advanced treatment technologies that can enhance the removal efficiency of microplastics (MPs) in drinking water. Additionally, more research is needed to understand the toxic impacts of MPs on marine ecosystems, including coral reefs, seagrass beds, mangroves, and other important habitats.