

CCS Researcher of the Year Award

Awarded annually to a full time internal academic of the College of Chemical Sciences, Institute of Chemistry Ceylon, for the most outstanding contributions to scientific research in the course of a particular year. The criteria for the evaluation of the awardee includes peer-reviewed scientific publications, including research articles, review articles, and book chapters, conference presentations and Web of Science citations garnered throughout the course of the year.

CCS Researcher of the Year Award - 2024



Dr. Gobika Thiripuranathar obtained her Graduateship in Chemistry qualification with first-class honors from the College of Chemical Sciences, Institute of Chemistry Ceylon, and topped the batch and is the recipient of the Shireen Jayasuriya Memorial Gold Medal in 2006. She secured the overseas research student award scholarship

and Heriot-Watt University scholarship in 2008 to pursue her PhD at Heriot-Watt University, Scotland, where she worked on polyhedral boron cluster chemistry. Dr. Gobika has 31 peer-reviewed publications, 9 chapters, and 50 communications, with over 800 citations and an h-index 16. Her publications include 20 original research and 11 review articles. She is the proud recipient of the CCS Best Researcher Award for 2021 and 2022. Her interest in research focuses on the sustainable production of nanomaterials from agricultural wastes and underutilized resources from Sri Lanka towards value addition. Dr. Gobika is a senior lecturer at the College of Chemical Sciences, Institute of Chemistry Ceylon.

Abstract of the CCS Researcher of the Year Award - 2024

Potential role of Marine macroalgae in Human welfare

Gobika Thiripuranathar

College of Chemical Sciences, Institute of Chemistry Ceylon, Rajagiriya 10107, Sri Lanka

More than two billion people around the globe are undernourished due to a lack of essential vitamins and minerals; especially, it is a severe threat in developing countries. Hence, to overcome this, consuming marine macroalgae species, known as seaweeds, could be an ideal option due to their excellent dietary composition. Seaweeds are plant-like organisms attached to rock or other hard substrata in coastal areas. According to pigmentation and morphological features, they are categorized into three taxonomic groups, namely chlorophyta (green algae), ochrophyta (phaeophyceae; brown algae), and rhodophyta (red algae). Soluble dietary fibers, proteins, minerals, vitamins, antioxidants, phytochemicals, and polyunsaturated fatty acids are rich

in seaweed. As a result, they have been used widely in many industries, including agricultural, pharmaceutical, cosmetic, and nutraceutical. Besides, due to their low-fat content and the occurrence of protein and carbohydrate substances, they contribute few calories to the diet. Also, the availability of various colors, shapes, textures, and flavors made them attractive to be used as food since ancient times, mainly in Asian countries. Sri Lanka is an island surrounded by a coastline with about 400 marine algae species belonging to numerous families. The extensive beds of seaweeds are present along the northern, northwestern, western, and southern coasts of Sri Lanka, and a few species have been identified in the eastern coastal area. Though there were reports on

a significant seaweed market in the 1930s, farming was limited afterward for various reasons, and currently, only small-scale harvesting with limited value addition is carried out in the northern part of Sri Lanka. Besides, there has been a lack of reports on their beneficial properties and usage as a food item in Sri Lankan cuisine. According to the resources, *Sargassum* species, brown algae, are widely available in the Sri Lankan coastal line. Therefore, our research group studied the proximate composition, mineral content, fatty acid profile, heavy metal content, and biological and physical activities of the aqueous extract of brown algal species, *Sargassum polycystum*, and *Turbinaria ornate*, collected from

Point Pedro, Jaffna, with the aim to give value to the underutilized seaweeds available in Sri Lanka. The results of our study have shown that both these algal species contain a high amount of dietary fiber and protein and a low-fat content. Also, the results revealed a very high iron content in both species compared to other minerals. Besides, these seaweeds exhibited excellent biological activities, such as antioxidant and antibacterial. However, trace amounts of heavy metals such as chromium, nickel, arsenic, mercury, and lead were detected in both species; meanwhile, a higher amount of manganese was detected in *Sargassum polycystum*. Therefore, further research must be conducted before practical applications.

Ramakrishna Memorial Award

Awarded for an exceptional research contribution of an original nature in the field of Inorganic and/or Analytical Chemistry and/or related areas such as Bio-inorganic Chemistry or Bio-analytical Chemistry.

Ramakrishna Memorial Award - 2024



Prof. T. C. Jayaruk is a graduate of the University of Colombo, and he pursued his PhD from the University of Alabama, United States of America. He currently serves as an Associate professor in the Department of Applied Sciences, Sri Lanka Institute of Information Technology. He has over 11 years of experience in the field of nanotechnology, in synthesizing, characterizing, and applying nanomaterials for water purification through adsorption and photocatalysis, testing their antibacterial potency, and drug delivery. He is passionate about adding

value to neglected natural materials and waste by using them for the fabrication of nanomaterials. His research led to the production of novel nanocomposites using ilmenite sand, graphite, sucrose, urea, and rice husk as raw materials which were effectively used for water purification. He is currently interested in developing nanodrug delivery systems to deliver pharmacologically active plant secondary metabolites which show potential therapeutic effects against neurodegenerative diseases and cancers. He has published over 25 indexed journal papers from the work he has carried out so far. He has been recognized for his teaching and research contribution by the Sri Lanka Institute of Information Technology awarding both the best teacher and best researcher of the institute awards in the senior lecturer category in 2023. Furthermore, he has been recognized for his contribution to the scientific community through publications in high-ranking journals.