

---

Departmental Seminar

---

Seminar Title	: DETECTION OF VITAMIN D3 IN FORTIFIED MILK USING CARBON DOT AS A FLUOROPROBE.
Speaker	: Ms. Samayeeta Ghosh (519ch1013)
Supervisor	: 8017251280
Venue	: Old Seminar Hall, Chemical Engg. Department
Date and Time	: 17 Mar 2025 (11.30 A.M.)
Abstract	: Insufficient vitamin D3 in natural resources affects people of all ages across the world. Despite sufficient sunlight, vitamin D3 deficiency is very common around the globe, irrespective of age or region. In order to improve the consumption of vitamin D3 intake with a regular diet, the food sector needs to come up with an effective approach to improving overall human health. The fortification of foods is an alternative way to minimize vitamin D3 deficiency in the human body. Fortifying dairy products with vitamin D3 can help to increase vitamin D3 consumption. Since milk is consumed by people of every age group, fortifying milk with vitamin D3 is an effective approach to resolving the problem of vitamin D3 deficiency. Thus, measuring the vitamin D3 level in milk is very essential. However, most analyses for vitamin D3 detection are complex and time-consuming. In this study, we fabricated a carbon dot-based turn “off-on” type fluorescent sensor for fluorometric detection of fortified vitamin D3 in milk samples. Fluorescence quenching mechanism is the main working principle of this sensor. A simple one-step hydrothermal methodology has been demonstrated for green synthesis of carbon dots (CDs) from berry juices as natural precursors without additional chemicals. In this study, carbon dots act as a promising probe for fluorescence detection of vitamin D3, offering a limit of detection (LOD) of 9.74 nmol/L