

ABSTRACT

Water is a basic need for humans and other organisms. One of the water sources that support human life comes from rivers. River water that is suitable for social use is river water that meets environmental and health quality standards. Currently, many rivers in Indonesia are polluted with hazardous contaminants, including heavy metal cadmium. The metal poses risks to human health and the environment. Therefore, a tool capable of detecting heavy metals is needed. One of the tools that can be used to detect heavy metals, namely cadmium, is based on Screen Printed Carbon Electrode (SPCE) where measurements are made using 3 electrodes, namely working electrode (WE), reference electrode (RE), and counter electrode (CE). In addition, SPCE can be modified on the working electrode using several materials such as Zinc Oxide (ZnO), Polyvinyl Alcohol (PVA) doped by CNC (Cellulose Nanocrystal). Calibration of the device obtained a value of R-square = 0.9997, and the device can detect the presence of heavy metal cadmium with a spike in the voltage range of about 0.5. Thus, the device can work in accordance with the purpose of detecting cadmium heavy metal in liquid samples.

Keywords: Detection, Electrochemical, Cadmium, Nanocomposite, SPCE