

ABSTRACT

Kanza F Hafidz and M Hafuza Aleriz - Chromogenic Biosensor from Dragon Fruit Anthocyanin for Mercury Detection

Mercury (Hg) is the major heavy metal pollutant that widely contaminates soil and water. Recently biosensor is able to detect analyte rapidly and specifically. Current mercury detection methods have specific drawbacks such as high cost, limited detection, and operational difficulty. In addition, anthocyanin from dragon fruit extract is able to react with acid, base and metal ions that is indicated by color change. This research consists of 4 steps : anthocyanin extraction from dragon fruit, test against HgCl_2 , absorption in filter paper and HgCl_2 strip analysis by Red Green Blue (RGB). For test against HgCl_2 anthocyanin solution indicated color change from purple to red. Furthermore in HgCl_2 analysis with strip, highest HgCl_2 concentration was shown by highest red percentage in RGB analysis by 50.66 %. In contrast control (aquadest) which did not contain HgCl_2 showed purple with lowest RGB by 40,117 %. In addition this analysis was linear with $R^2 = 0.9917$. Hence it is concluded that RGB analysis is able to detect Hg^{2+} by higher red percentage.