

A Study on the Utilization of Fiber-Type Biosorbents Using Waste Matter

Son, Sunhyung (School: Chungnam Science High School)

Lee, Shinhoo (School: Chungnam Science High School)

Lee, Taewoo (School: Chungnam Science High School)

The study began by thinking that the blood of smokers would be effective in attracting heavy-metals after seeing a paper stating that heavy-metals were detected more than non-smokers. The authors have designed fibrous biosorbents to overcome the limitations of adsorbents. The lyophilized blood alone showed high adsorption of heavy-metals. The possibility of heavy metal adsorbent using blood waste was confirmed. The authors made fibrous biosorbent with lyophilised defibrinated horse blood and tested the adsorption capacity for heavy-metal solution. In result, overall adsorption capacity of fibrous biosorbent which made with lyophilised defibrinated horse blood was excellent than original fibrous biosorbent. Chlorophyll's porphyrin structure was similar to that of hemoglobin in red blood cells, so the authors thought it would be nice to create a fibrous biosorbent using chlorophyll from ecosystem disturbances. Other investigations have shown that the chlorophyll-plated magnesium drops Mg in porphyrin-structured, and the chlorophyll solution which added electric was more capable of adsorbing heavy-metals. In addition, the adsorption capacity of heavy-metals was better in the fibrous biosorbent prepared from the chlorophyll solution which added electric. Furthermore, Chitosan, which used as a support was found to be so expensive, so authors challenged to find new inexpensive support with different viscosity.