

# Cassava starch: structural modification for development of a bio-adsorber for aqueous pollutants. Characterization and adsorption studies on methylene blue

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A potential bio-adsorber of contaminants in aqueous medium was developed in this work through modified starches using organic acids. Methylene blue (MB) was used as example of a pollutant agent. For this purpose, firstly three types of modified starches were prepared using malonic, glutaric, and valeric acids in aqueous solution at different concentrations. The characterization of modified starches showed concordance with the chemical structure of the acid incorporated in starch. Pseudo-second-order model explains the rate of adsorption of the cationic dye MB. The adsorption of MB was carried out through intraparticle diffusion mechanism mainly. Physical and chemical interactions between modified starch and MB are involved. © 2020, Springer-Verlag GmbH Germany, part of Springer Nature.

Adsorption

Contaminants

Methylene blue

Modified starch

Organic acid

Adsorption

Aromatic compounds

Dyes

Fatty acids

Impurities

Organic acids

Pollution

Adsorption studies

Chemical interactions

Intra-particle diffusion

Methylene Blue

Modified starches

Pseudo-second order model

Rate of adsorption

Structural modifications

Starch