Preliminary Study for the Preparation of Modified Leaf Powder

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ABSTRACT

The main aim of this preliminary study is to modify the leaf powder of *Saraca thaipingensis* for the use as a biosorbent. Biosorption utilizing modified biomass is a promising venture in the field of wastewater treatment. It has the potential to help remediate pollution by adsorbing heavy metals and contributes to metal recovery. It has high affinity towards heavy metal ions and its efficient adsorption properties are due to its large surface area and porosity. This preliminary study focuses on the preparation and ways of preparing modified *Saraca thaipingensis* leaf. An experiment to screen for the minimum carbonization temperature was conducted and different temperatures were selected (300°C, 400°C, 500°C) to determine the most suitable parameters (acid-impregnation ratio, temperature, and time duration) for the preparation of modified bio-carbon in a two-step activation process. It was found that carbonization at 300°C for 1 hour with acid impregnation ratio of 1:2 produced the highest percentage (%) yield of modified bio-carbon, at 74.204% with a standard error of 1.941.

Keywords: *Saraca thaipingensis*; acid-impregnation; temperature; modified bio-carbon, two-step activation process.