UNIVERSITI TEKNOLOGI MARA

# RHEOLOGICAL BEHAVIOUR OF LIQUID FUEL EMULSIONS USING FOOD WASTE BASED CHAR WITH CATIONIC SURFACTANT

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# ABSTRACT

This research project is basically a research to develop a renewable energy that can be consumed to replace the pioneer of the fossil fuels due to its exhaustion besides reducing the food waste that endanger our ecosystem. By using food waste as in 'tempe', as the based char to the liquid fuel emulsion, the char slurry will be tested by using cationic surfactant which is benzalkonium chloride, to prove the homogeneity and the compatibility of the char slurry with the surfactant by heating. The 'tempe' was firstly dried to reduce the moisture content to prevent the reading of the carbon content of the pyrolysed samples are disrupted before been taken for further steps for pyrolysis.

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# INTRODUCTION

## 1.1 Research Background

Reducing food waste is one of the prominent goals in the current research, which has also been set by the United Nations to achieve a more sustainable world by 2030 (Norbert, Claudia, Susann, Jessica & Harald, 2016). The Food and Agriculture Organization of the United Nations (FAO) defined food loses and waste (FLW) as any change in the edibility, wholesomeness, availability or quality of edible material that prevents it from being consumed by people. In recent years, the question of food losses and waste (FLW) has been the subject of much debates. When it comes to food security, the preservation of natural resources and potential economic benefits, the general public, scientists and politicians all agree that FLW needs to be reduced (Geraldine & Benoit, 2017). FLW is the major constituent of organic waste in urban solid waste in the most cities around the world. In the context of the analysis on the sustainability of well-being, the issue of food waste represents under a legal point of view a complex aspect which the result of modern society and the well-being that characterises it, and it involves multiple interests and is part of food security. The issue evokes the fact that food insecurity continues to exist and indeed has worsened in many parts of the world and raises questions on the impact of food waste on global food security. Thus, the issue is linked to quite significant aspects related to environmental and food issues such as the control of natural resources, the loss of biodiversity, soil erosion, climate change, the reduction of important resources such as agricultural soil and water, and the loss of natural habitats (Nicola, 2016).

Approximately one-third of all food produced for human consumption worldwide is wasted. The current waste management practices are not only costly but also have