

Thesis Title	Production of Red Pigment from Agro-Industrial Wastewaters by <i>Monascus</i> fungi.
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#### Abstract

The aim of this thesis was to use agro-industrial wastewater as nutrient sources for red pigment production by *Monascus* fungi. Wastewaters from 4 types of agro-industrial factories were used, namely sticky-rice flour manufactory (steeped liquor and filtrated water), pineapple cannery (peel squeezed juice), tapioca starch factory (decanter, separator and combined wastewater), and tofu-skin manufactory (processing wastewater).

Seventy one isolates of *Monasci* were introduced to primary screening on Yeast-malt extract medium. Thirteen isolates which produced high red pigment were selected, then were further cultivated in those wastewaters. The results showed that *Monascus* sp. KT 066 was the highest red pigment producer in all kinds of wastewaters. The highest amount of red pigment (23.67 units) was observed when *Monascus* sp. KT 066 was cultivated in the tapioca decanter wastewater. Moreover, tapioca decanter wastewater also showed to be the best nutrient source for red pigment production for other selected *Monasci*.

Red pigment which was obtained from cultivated *Monascus* sp. KT 066 in tapioca decanter wastewater, had maximal optical densities at 422 and 500 nanometers. At the neutral to slightly alkali condition, the pigment had quite good stability (> 90% remaining) when treated under pasteurization, boiling at 100°C for 1 hour, sterilization at 110°C 10 psi 10 minutes and UV exposure for 4 hours. In addition, red pigment solution stored at 4°C in the dark was the most stable.