Aurantiochytrium mangrovei Sk-02, a marine protist, was originally isolated from a mangrove forest. The special feature is that it can produce high levels of polyunsaturated fatty acids such as docosahexaenoic acid. A. mangrovei grow well in both carbohydrate and vegetable oil, this protist produce extracellular and/or cell bound lipase for hydrolyze oil (TAGs) in its medium before oil accumulation in its cell.

The purpose of this research is to study various lipase assay methods in order to select a suitable method for measure supernatant or whole cell of A. mangrovei. Methods were the turbidimetric method, the para-nitrophenyl palmitate (pNPP, an artificial substrate) pH-stat and the copper soap method as well a latter two measure released free fatty acids, use olive oil as a model substrate. From this study, we found the lipase activity by using copper soap assay was higher than pH-stat and various FFAs gave significantly different response at same wavelength. Thus, copper soap assay was rejected because of diversity of FFAs in olive oil. pH-stat and colorimetric by pNPP assay are suitable assay.

References:
1. Lipase assay in soil by copper soap colorimetry (Kwon & Rhee, 2004)

Keyword index: lipase assay, pH-stat, copper soap, pNPP assay