

## ABSTRACTS

**Research Title** : Photo type model for change organic waste to Bio-diesel and Bio-gas production in Bangkhae subdistrict, Samut Songkhram province.

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This research aims to find processing organic waste into biodiesel and biogas. The implementation of the 3 objectives include an analysis of how organic waste can be used as an alternative energy in the form of biogas and biodiesel type by using the biotechnology. And find ways to develop organic waste management to be biodiesel and Biogas for community usage. The results shown that the amount by weight of about 35-45 % all spam each day. The vegetable used oil has a percentage of free fatty acids (Free Fatty acid) 1.5-2.5. And adoption of organic food waste is mixed with the bacterial species *Pseudomonas aeruginosa* and *Pseudomonas stutzeri* in the ratio 1: 1 to produce biogas up 42.56 and 42.2 representatively. So it has lower percent than the control diet consisting of food scraps mixed with cow dung in the ratio 1: 1 to produce a biogas maximum up 68.25 % at 30 days. The used oil can be biodiesel production by transterification process with 6 species bacteria and take a time to react 48 hours showed that the bacteria strain *Pseudomonas stutzeri* can produce biodiesel (methyl ester's) in the highest 89.5 %, at 4: 1 ratio , viscosity 12.59 cSt., And a flash point of 172°C. The results of the demonstration in small set approximately 5 liters and produces biogas with a capacity of 5-10 liters found that used oil has a free fatty acid content of 1.5-2.5 % using bacteria *Pseudomonas stutzeri* and *Bacillus anthracis* at 4: 1 ratio can produce biodiesel 65-70 %v/v and produce of biogas up to 40.25 % of bacteria *Pseudomonas stutzeri* and 39.86 % of the bacteria *Pseudomonas aeruginosa*, which is

not as good as with cow dung mixed with food waste to produce biogas, up 68.25 %.  
The final assessment of customer satisfaction and the ability to bring research results to  
good use in the best of all issues.

**Keywords:** Organic solid waste, biodiesel, Bio-gas, Bangkai subdistrict.