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DEVELOPMENT OF A LABORATORY-TYPE UPFLOW  
ANAEROBIC SLUDGE BLANKET REACTOR

THESIS

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DEVELOPMENT OF A LABORATORY-TYPE UPFLOW  
ANAEROBIC SLUDGE BLANKET REACTOR

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## ABSTRACT

LAGAYA, MARITES PINTANO, Don Severino Agricultural College, Indang Cavite, April 1997. "DEVELOPMENT OF A LABORATORY-TYPE UPFLOW ANAEROBIC SLUDGE BLANKET REACTOR." Adviser: Engr. Jaime Q. Dilidili.

An experimental set-up for a laboratory-type upflow anaerobic sludge blanket reactor was conducted at the Animal Science Department of the Don Severino Agricultural College, Indang Cavite from January to February 1997. Specifically, it aimed to evaluate the effectivity of gravel, plastic net and porous rocks as filtering materials; evaluate the wastewater quality; and determine the gas production rate of UASB reactor.

The result of the study shows that retention period has a significant effect among treatments. In addition, total solids are also significantly affected by both the filtering materials and retention period. As far as percentage total solids is concerned, porous rocks gave the best result with 5.47 % and 8.48 % lowest and highest percentage reduction, respectively. After the conduct of the study, it was found out that wastewater treated with the upflow anaerobic sludge blanket reactor is safe to dispose to class C receiving bodies of water because it passed the effluent standard set by the DENR.

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# DEVELOPMENT OF A LABORATORY-TYPE UPFLOW ANAEROBIC SLUDGE BLANKET REACTOR<sup>1/</sup>

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## INTRODUCTION

The by-product of the biogas plant is the sludge, an aqueous suspension of solids in a liquid. It has the appearance of dark mud, and on closer look, fine fibers become evident. The liquid sludge comprises about 90% of the total sludge from a biogas plant. The volume of the sludge is large, for there is very little volume decrease brought about by methane fermentation. The disposal of the sludge thus presents a formidable problem to large biogas plants.

Since enhancement of environmental quality is an accepted national goal, the pollutional strength of wastewaters and its disposal indicate that attention must be given in disposing these wastewaters with minimum contamination to the environment.

Since the sludge is the end product of a strictly