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P R O G R E S S R E P O R T

A STUDY ON INSECTICIDAL PRINCIPAL OF SEEDS OF
ANMONA SPECIES FOUND IN INDONESIA

No. of Project: AID 936.5542.97.1

Periode covered by this report: July 1 to December 31 1988

Faculty of Pharmacy
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Indonesia

PROGRESS REPORT

A Study on Insecticidal Principal of Seeds of Annona species found in Indonesia

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INTRODUCTION

Annona species found in the region of Yogyakarta are Annona squamosa, Annona reticulata, Annona muricata and Annona cherimola, grown in gardens or wild.

Annona squamosa are grown on lime mountainous area of Yogyakarta in the villages of Bayat and Wonosari.

For this study seeds of Annona squamosa grown in Bayat and Wonosari were used. The seeds of A. squamosa from Bayat have less seeds thick fruitflesh than seeds of A. squamosa from Wonosari. The seeds contains 30-35% fatty oil, of which about 1,15 consist of petroleum insoluble material.

In the preliminary study ether extract of the whole seeds was studied, then the seed's coat was separated from the seed's kernel and extracted with ether separately.

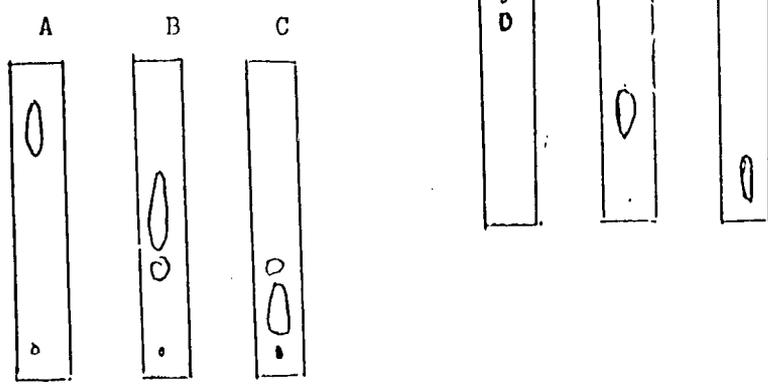
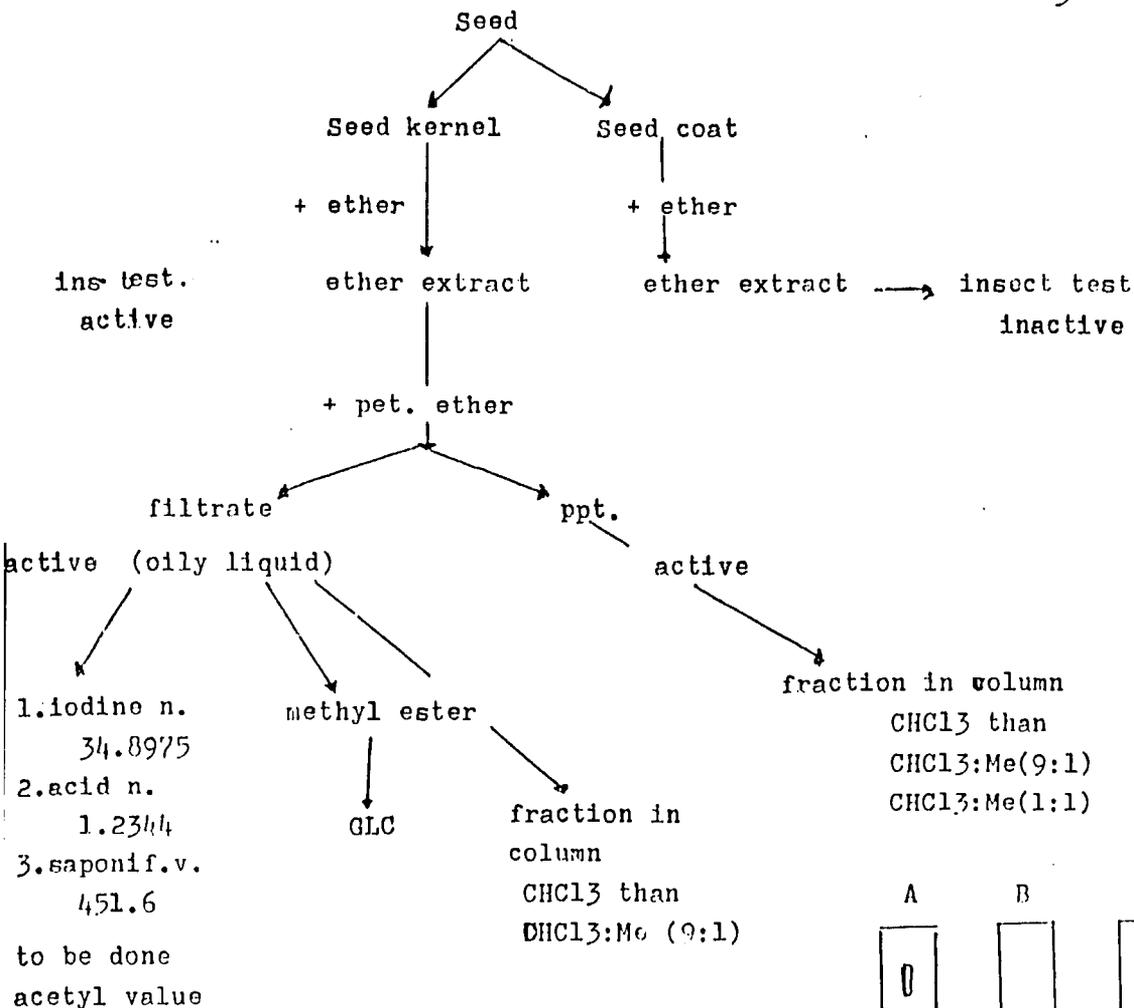
ACTIVITIES DURING PERIODE COVERED IN THIS REPORT

July 1 to December 31 1987

1. Separating the seed's coat from the seed's kernel.

2. Testing the insecticidal activities of seed kernel ether extract and seed's coat ether extract upon Sitophilus oryzae.
3. Fractionating the seed's kernel ether extract into petroleum ether soluble and insoluble fractions.
4. Testing the fractions upon Sitophilus oryzae.
5. Isolation of volatile fraction of seed's kernel by water distillation using Stahl apparatus.
6. Testing the volatile fraction upon Sitophilus oryzae.
7. Analysis of fatty acids of seed's kernel oil after separation of the petroleum ether insoluble fraction, by transesterification than GLC.
8. Determination of acid number, saponification number and iodine value of petroleum ether soluble oil fraction.
9. Fractionizing the petroleum ether soluble and insoluble fraction in chromatography column.
10. Testing the fractions upon Sitophilus oryzae.
11. Running IR spectra and UV spectra of isolated compounds.

The scheme of the work done is as follow;



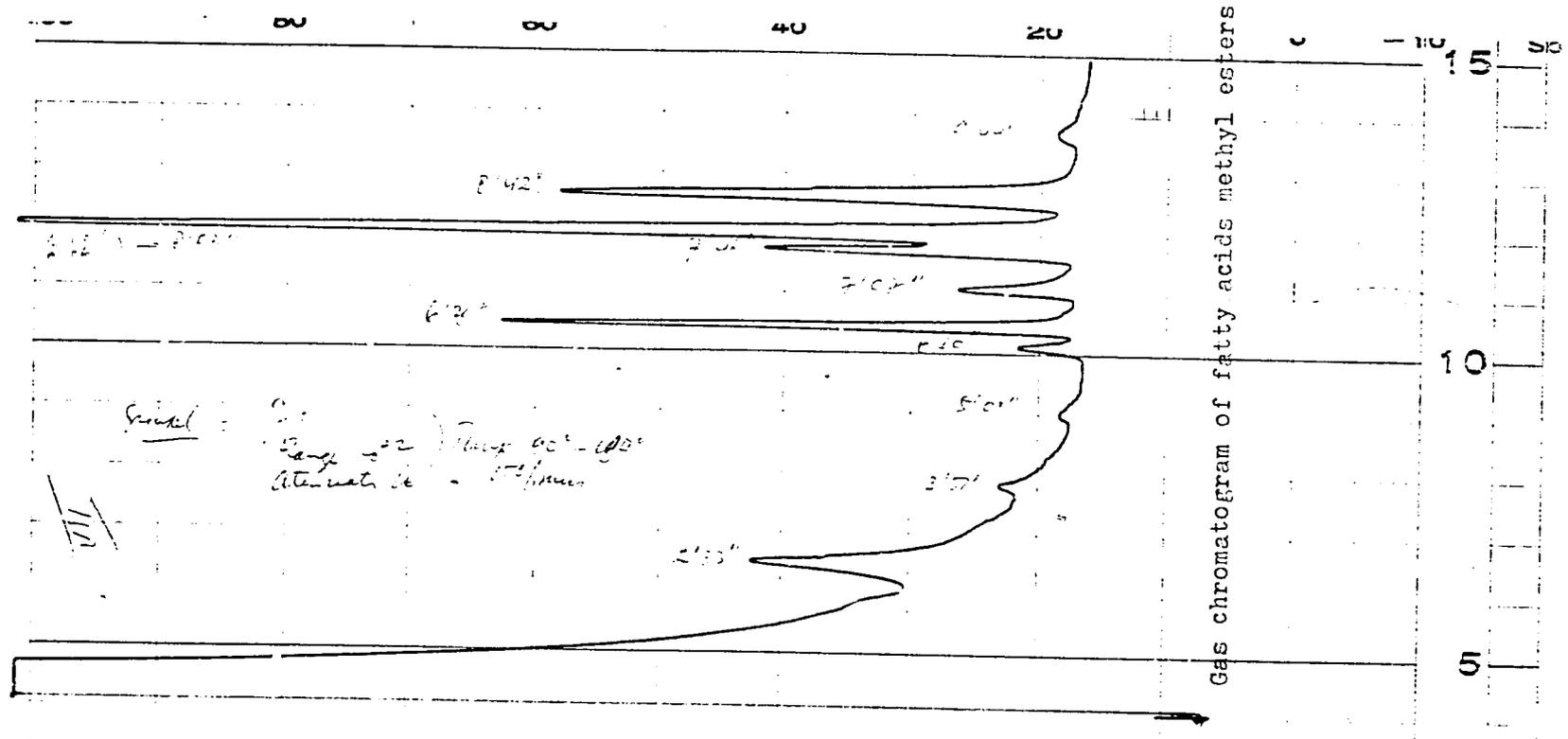
Soon to be done:
 Scale up of procedure to obtain sample for biological testing than purification

RESULT AND DISCUSSION

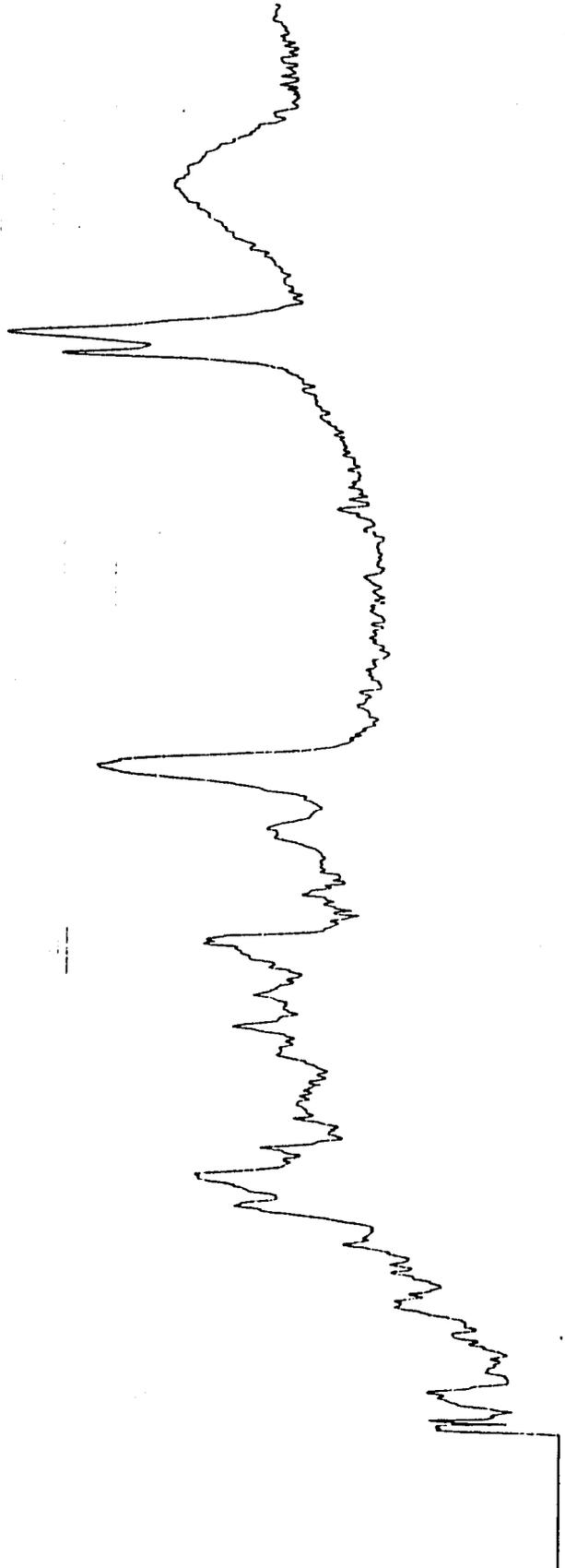
The seed's coat was separated from the seed's kernel. Ether extracts of seed's coat and of seed's kernel were evaporated and tested upon Sitophylus oryzae. Since the seed's coat ether extract was inactive no further studies on the seed coat will be carried out. The seed's kernel ether extract was evaporated and separated into petroleum ether soluble and insoluble fractions. Both fractions were tested upon Sitophylus oryzae and were active.

The petroleum ether soluble fractions, an oil and the petroleum insoluble fractions a resinous mass were fractionated in a column of silicagel. Two compounds were isolated. The UV and the IR spectra of the compounds are attached.

The iodine number, the acid number and the saponification value were determined using the procedures written in the Indonesian pharmacopeae. The iodine number found is 34.8975, the acid number 1.2344 and the saponification value 451.6. After transesterification using benzene, methanol and sulfuric acid, the methyl ester of the fatty acids were examined in GLC. The chromatogram of the fatty acids are attached. Further analysis using spiking with standard compounds will be carried out. Spectroscopic studies on the active compounds will also be carried out. No further analysis on the volatile fractions will be conducted, since it turned to be inactive.



SAMPLE : 1
REMARKS : -



SAMPLE : II
PERMITS : -

