PN-ABA-562

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D.C. 20523

DATE: 8/16/88

MEMORANDUM

TO: AID/PPC/CDIE/DI, room 209 SA-18

FROM: AID/SCI, Victoria Ose

SUBJECT: Transmittal of AID/SCI Progress Report(s)

Attached for permanent retention/proper disposition is the following:

AID/SCI Progress Report No. 6.562
Jan. 1 - June 30, 1988

Attachment

1 copy

6.562

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

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

No. of Project: AID 936.5542.97.1

Periode covered by this report: January 1 to June 30 1988

Faculty of Pharmacy
Gadjah Mada University
Indonesia

Rec'd in SIN AUG 16 1988

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PROGRESS REPORT

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

No. of Project: AID 936.5542.97.1

Periode covered by this report: January 1 to June 30 1988

INTRODUCTION

In the first progress report, preliminary study on the insecticidal activities of the ether extract of seeds of *Annona squamosa* and on the petroleum ether insoluble fractions were reported.

In the second progress report, insecticidal activities on the volatile fraction and ether extract of seed coat were reported to be inactive.

Further studies were carried out only on the ether extract of seed kernel, which was evaporated and precipitated by adding petroleum ether, than fractionized in a column of silicagel using chloroform, choloroform-methanol(9:1) than chloroform-methanol(1:1) as consecutive eluants. Attempt to use other extraction methods has been made, but no better result has been obtained.

As test insects *Sitophylus oryzae* reared in the laboratory in rice and maize grain were used.

Analysis of fatty acids by transesterification than GLC was reported.

Activities carried out during periode covered in this report periode, January 1 to June 30 1988.

I.1. The ether extract of seed kernel, an oily mass, was mixed thoroughly with petroleum ether. A resinous mass, brown coloured was precipitated.

2. The precipitate so obtained was fractionized in a column of silicagel using chloroform, chloroform-methanol(9:1), than chloroform-methanol(1:1) .

3. Fractions with same Rf value were collected and tested upon Sitophylus oryzae, as contact poison.

4. The most active fraction was separated into single compound using column chromatography and preparative thin layer chromatography.

5. The single compounds was tested upon test insects.

6. The active compound was characterized by running IR and H^1NMR spetra(60 MHz spectra) determining the physical constants. Some sample are sent abroad to obtain C-13 NMR spectra, H^1 NMR spectra (300 MHz), and masspectra(high resolution)

II.1. Collecting seed samples of Annona muricata.

2. Extractions of seed kernel of Annona muricata.

3. Adding petroleum ether to obtain resinous mass.

4. Testing the activities as contact poison on the resinous mass.

Result and Discussion:

Further studies were carried out on seed kernel extract of Annona squamosa since the seed coat extract as well as the volatile fractions turned to be inactive.To the ether extract of seed kernel,petroleum ether was added and the precipitate, a brown resinous mass was fractionized in a column of silicagel using combination of solvents.

The fractions with same Pf value were collected and tested upon Sitophylus oryzae.

The fractions with the highest activity were separated into single compound by column chromatography and preparative thir layer chromatography,than tested upon test insects.The active compound obtained was characterized using spectroscopic methods, IR and NMR(H' NMR - [illegible]).Since NMR spectra with higher resolution is needed,so are the C-13 NMR and high resolution masspectra,some have to be sent abroad to obtain the spectra.

Elemental analysis and determination of physicochemical constants will be determined soon.

The same procedure of study was carried out on the seed kernel of Annona muricata.Annona muricata or soursop can be found everywhere,wild or cultivated,the fruits are edible and used as fruits or processed for fruit juices or condiments. Preliminary study on the insecticidal acitivities of seed extract did [illegible] ive a promising result.

So a study on Annona reticulata is just started.Annona reticulata is a rare wild Annona species ,the fruits are edible and is in season between August to November.Though the fruits are edible they are not found sold in the markets.Some amount of seeds are obtained from Royolali area.The study on this species will be

limited to look for same acti compound as has been found in the seeds of Annona squamosa.