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Making a Simple Distillate Prototype for the Development of an Essential Oil Business at Agricultural Vocational Schools

Names of the Researcher

A N A S

ROYNISFAN

ABDUL KADIR

MINISTRY OF EDUCATION, CULTURE, RESEARCH AND TECHNOLOGY OF THE REPUBLIC OF INDONESIA
SECRETARIAT GENERAL
SEAMEO SEAMOLEC
SOUTHEAST ASIAN REGIONAL CENTRE FOR TROPICAL BIOLOGY (SEAMEO BIOTROP)
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1. ResearchTitle : Making a Simple Distillate Prototype for the Development of an Essential Oil Business at Agricultural Vocational Schools

2. Research Coordinator
   a. Name : Anas, S.Ag.,MA
   b. Gender : male
   c. Occupation : teacher

3. Institution
   a. Name of Institution : SMKN 1 Pasie Raja
   b. Address : Jl. Tapaktuan-Medan Km,23
   c. Phone/Fax. : -
   d. Email : anas_adt@yahoo.com

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Endorsed by
Acting Manager of Research
Hub Innovation Department

Research Coordinator

Ir. Sri Widayanti, M.Si
NIP. 19670822 200701 2 001

Anas, S.Ag.,MA
NIP. 19751212 2002121006

Approved by

Dr. Zulhamsyah Imran, S.Pi., MSi
Direktur SEAMEO BIOTROP
NIP. 19700731 199702 1 001

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Abstract

The high price of flute equipment used by schools for practical activities has caused schools and students to be lazy to carry out practical activities, especially for agriculture-based vocational high schools, one solution that can be given for this is how to load simple tools for distillation that can be made. by schools with low costs both in terms of manufacturing costs and refining costs so that it will encourage students to carry out practical activities in refining certain oils to be able to produce other derivative products.

So here we have tried to make a simple distiller with a capacity of five kilos for one distillate material and can produce 3-4 ml of oil so that in terms of operational costs the available raw material funds can be adjusted to their availability.

1. Introduction

1.1. Background

Indonesia is one of the largest essential oil producers in the world, one of the essential oil-producing plants is patchouli, besides that there are many flowers that can be used by the people of the past and the present generation to make perfumes on a small scale as a support for the community's economy. The high price of flute equipment used by schools for practical activities has caused schools and students to be lazy to carry out practical activities, especially for agriculture-based vocational high schools.

1.2. Aim

The creation of a simple distillation tool that can be made by the school itself to be used by students in agricultural-based oil refining practice activities

1.3. Expected results

The existence of a simple distiller that can be used with the fuel wood or gas method that produces oil and derivative products so that it can increase the economic value for schools

2. The benefits and importance of conducting research

With the existence of a prototype of a simple oil refiner, it can be useful for students and the community without incurring large costs in obtaining the tool and this is very important for the community to be able to increase the economic value in the cultivation of oil-producing plants.

3. Methodology

The methodology used in this study is an experimental form, through direct practice of making a simple prototype oil refiner using a thin stainless steel plate as a blower and condenser with the aim of avoiding contamination of the refined oil with heavy metals.

4. Results and Discussion

1) Result

So far, what we have been doing is an activity from March to November 2021 with the following results:

a. Two units of tubes made of thin stainless steel plates have been formed which will be used for cooking raw materials and a condenser as a container for the distillation process.

b. Other supporting materials are available as a series of assembling the distillation equipment which will be installed as a whole when testing is carried out.

c. A trial of lemongrass oil refining has been carried out with the following results:

Date	Time	Material	Test Result	Constraint
10/07/2021	10.00-12.00 wib	Daun Serai (5kg)	3 ml	cover for the ingredients doesn't fit
10/11/2021	09.00-11.00.wib	Daun Serai (5kg)	4 ml	water cycle is not stable from the pump
11/10/2021	14.00-16.00 wib	Daun Serai (5kg)	4,5 ml	-

2) Obstacle

Our plan is to try other ingredients such as seulaga flowers and jeumpa flowers but is constrained by the lack of ingredients (a little)

3) Discussion

As a whole, the activity has been going well with almost 100 percent achievement, so that at the end of this research activity we were able to complete it well so as to get the maximum results from this research, especially to support the teaching and learning process at the Agricultural Vocational School in producing certain oils. which can be produced with simple tools and low cost.

5. Bibliography

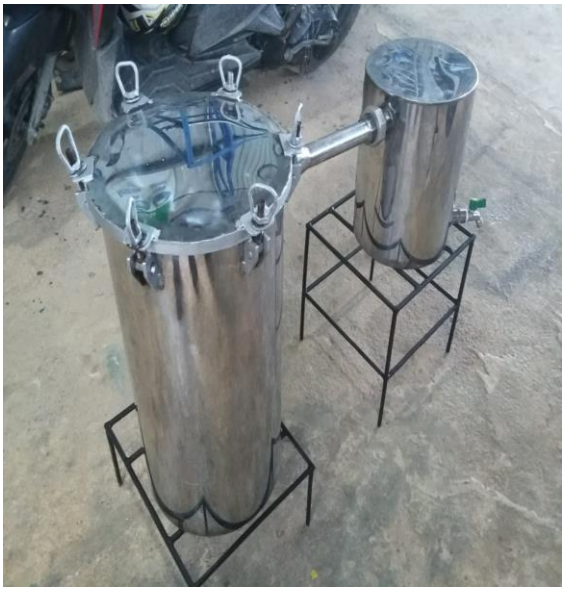
Smith, H. P. and L. H. Wilkes, 1990. Farm Machinery and Equipment. Gadjah Mada University Press. Yogyakarta

Rusli, M. S., 2010. Success in Obtaining Essential Oils. PT Agromedia Pustaka, Jakarta.

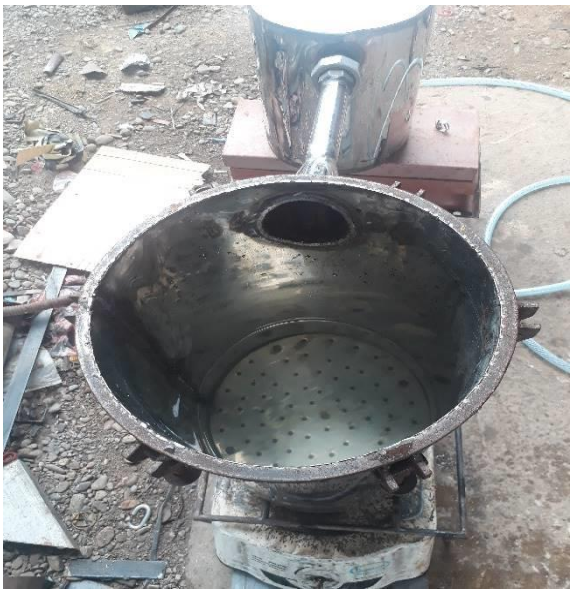
Attachment

Research Activities

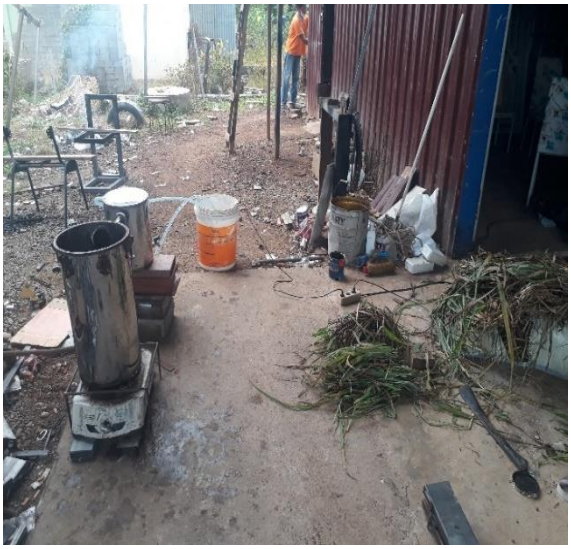
Assembling results Distillery



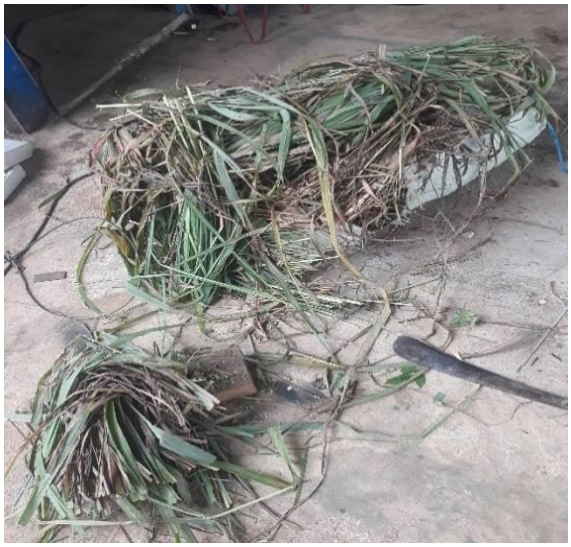
Overall view



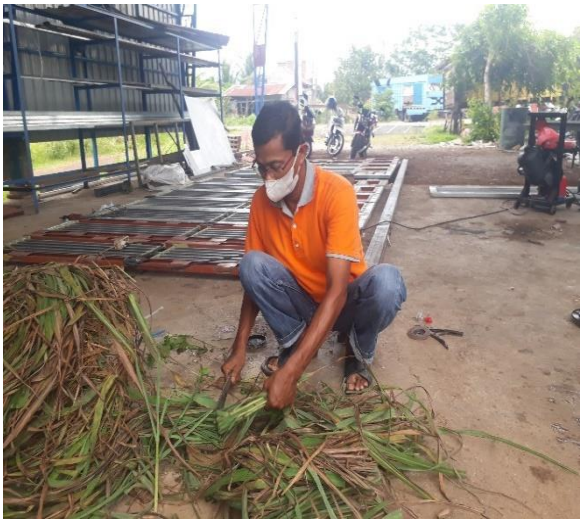
Overall view Raw



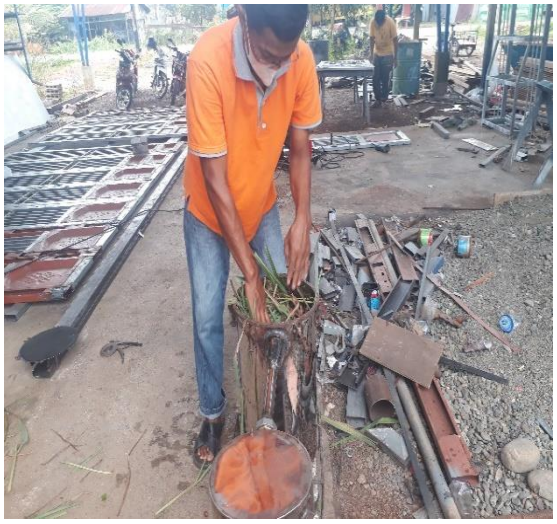
materials for lemongrass leaves



Material preparation



process Material input process



Distillation process

The results of citronella oil distillation