SEMI-AUTOMATIC HONEY MACHINE WITH LOW PRESSURE SCREW GEARBOX HYDRAULIC SYSTEM

Adhitya Wira Dharma[1)], Achmad Rianto[2)], Andriyanti Achsan[3)], Asrul Ludin[4)], Ridwan Maulana[5)], Agung Prijo Budijono[*)]

[1)] S1 Mechanical Engineering, Faculty of Engineering, State University of Surabaya
e-mail: adhityadharma@mhs.unesa.ac.id
[2)]S1 Mechanical Engineering, Faculty of Engineering, State University of Surabaya
e-mail: achmadrianto@unesa.ac.id
[3)] S1 Mechanical Engineering, Faculty of Engineering, State University of Surabaya
e-mail: andriyanti.17050524070@mhs.unesa.ac.id
[4)] D3 Mechanical Engineering, Faculty of Engineering, State University of Surabaya
e-mail: asrul.17050423007@mhs.unesa.ac.id
[5)]) D3 Mechanical Engineering, Faculty of Engineering, State University of Surabaya
e-mail: maulana.17050423007@mhs.unesa.ac.id
[*)]Author Corespondance, Faculty of Engineering, State University of Surabaya
e-mail: agung_pbudiono@yahoo.co.id

Abstract

The purpose of this study is to provide solutions to existing problems in SMEs Honey in the sector of Malang which is still using the traditional way in its process of filtering honey that has been applied. The method used is to utilize the Jack Screw system as an alternative to press and filter honey. In addition, it is also equipped with an ECU as a control system to regulate the working mechanisms exist. The expected result is to improve the quality of honey filtering so as to increase the productivity of SME Honey up to 400%. Early production of 3kg to 25kg of honey filtered every day

Keywords: Honey, Filtration, Honey Filtration

I. Introduction

Honey is a natural fluid that produced by bee. It has a thick form with sweet taste that has high nutrient. Honey has many benefits for human health. It is good either for stamina or healing diseases. (Alex, 2010)

Honey gets its sweetness from the monosaccharides fructose and glucose, and has about the same relative sweetness as sucrose (granulated sugar). It has attractive chemical properties for baking and a distinctive flavor when used as a sweetener. Most microorganisms do not grow in honey, so sealed honey does not spoil, even after thousands of years. (Wikipedia)

Honey provides 64 calories in a serving of one tablespoon (15 ml) equivalent to 1272 kJ per 100 g. Honey is generally safe, but may have various, potentially adverse effects or interactions upon excessive consumption, existing disease conditions, or use of prescription drugs. (Wikipedia)

II. Background

Our partner business is to produce purified pure honey. They got honey form bee farm after that they purified the honey with filtration method than pack it to bottles as final product. Our partner says that this field of business is very profit because:

1. Pure honey demand is high because there is so many impure honey in the market
2. It can't be expired
3. It sells point relatively increase every year

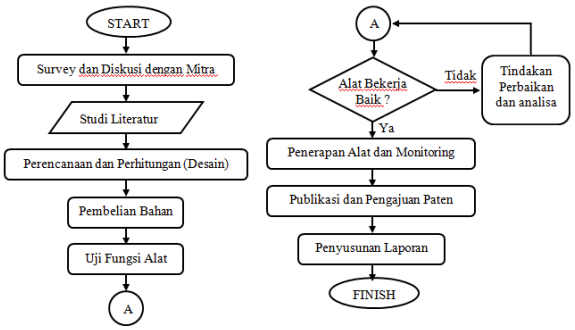
We believe that our partner still using traditional method to purified their honey product. Because of this, their main problem is in producing the final product. It is said that it needs 2 hour to produce 1 kg pure

honey. After we discus with our partner, we pointing out some of their problem:

1. No quality control
2. It needs long time to produce
3. Lot of wasted honey

III. Method

To achieve the purpose of this activity, the method used in the manufacture (RINDU MAS) Semi-automatic honey filtration machine on the implementation of Student Creativity Program This technology is displayed on the following flowchart



Gambar 1 .Flowchart Metode Pelaksanaan PKM-T

Study Of Literature

Filtration is the separation of particles from a fluid (liquid or gas) by passage of that fluid through a permeable medium. 1 When the particles represent a significant proportion of the fluid, the process may be described as bulk solids collection. When the particles represent only a very small proportion of the total (0.01% or less), the process is called fluid clarification. (Pall Corporation, 2002)

The material that we use for our machine wall is stainless steel. Our reason of using this material is because it is a food grade material which means that it is safe for food.

Our sampling technique for our machine performance is one-group pretest – posttest design. With this type of design, we take data before we give treatment and after we give treatment to know the effect of treatment. (Wiranto, 2013)

Observation And Discussion With Partners

This activity is the initial stage in finding to do list of what our machine minimum requirement from our partner, such as quality of final product, faster producing time, and minimize wasted honey.

Designing

The next stage is making the design machine "RINDU MAS". Based on the results of the discussion of the executing team, lecturers and partners then obtained the design "RINDU MAS" using 2016 inventor software as shown in the picture below:

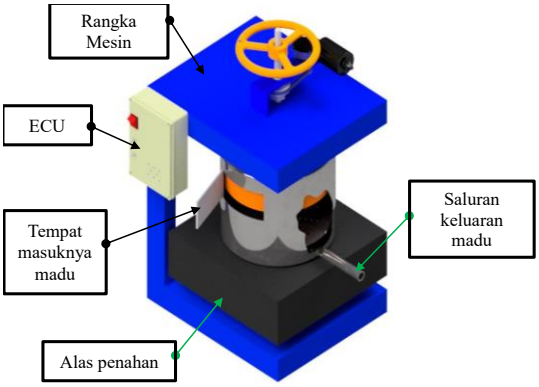


Figure 2. Isometric view of machine 1

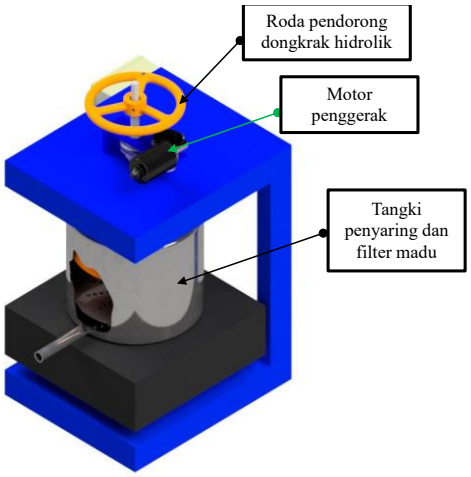


Figure 3. Isometric view of machine 2

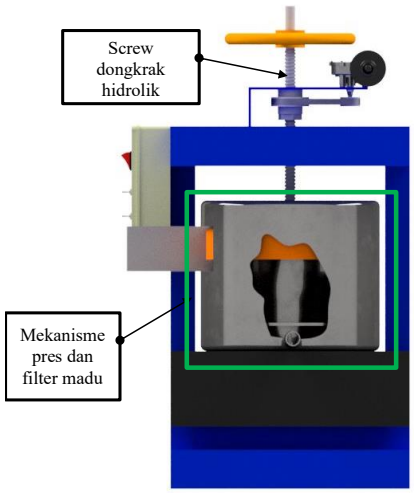


Figure 4. Isometric view of machine 3

Creating Work Order

Sequence of manufacture needs to be made to simplify the process of making the machine, so that the process sequence in the process can be done systematically and orderly.

Procurement Of Machines And Materials

Before the work begins, it is necessary to purchase materials in and machines used in machining.

Machine Making

after everything is available, including the machines and support machines that will be used, the next step is the manufacture or assembly of the machine. Usually this process takes a long time but our target is 1 month for machining work. If you encounter obstacles and problems usually use the services of a public workshop or hire a handyman to finish making the machine, but here we try to make the machine itself.

Test Machine

RINDU MAS Machine Testing is intended to ensure that the performance of each component of the machine making results can function in accordance with what is expected. The test will be conducted at our Partner's premises.

Evaluation

The evaluation and improvement phase of the machine is done after the machine testing has been done. At this stage will be assessed the working system of the machine, both from stability and processing results.

If the machine does not meet expectations, failure analysis and corrective action will be performed.

Implementation Of Machines And Monitoring

After the machine has been tested and get good results and maximum, then the machine submitted to the partner, and testimony in order to get a partner opinion how the performance in the machine. Monitoring function is to monitor machine condition used by partner, then documented and taken also analyzed data.

Publication And Filing Of Patents

The results of our program that has been completed will be published both scientifically and mass media with the aim that people know the benefits generated by the machines we make. Given the many benefits generated by PKM that we created and in the search results GOOGLE PATENT no one has filed a patent regarding our machine.

Report Creation

Reporting is done after all stages are completed so that the results obtained from making the machine can be explained in detail according to the data obtained.

IV. Result

Result of this program is the creation of Honey filtration and packing machine. With this machine, not only it will fast the production time, it will keep the quality control of every honey when it's filled inside every bottle.

V. CONCLUSION

Application of "RINDU MAS" semi-automatic honey filtration machine with low pressure screw gearbox hydraulic

system makes partner production speed increase from their previous production method which is traditional ways. Not only this machine does that, this machine will pack the final product cleanly because the precision filling that this machine implemented.

VI. REFERENCE

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