



INSTANT GRANULES OF VCO

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ABSTRACT

Research on "Formulation of instant granules of VCO (Virgin Coconut Oil)" has been carried out. Three formulas were prepared using variation of aspartame, NaCl, and citric acid. Quality of granules instant shown that it fulfilled the requirements as a good pharmaceutical preparation. Hedonic test on taste of formula I containing aspartam 0,43%, NaCl 2,82% and citric acid of 3,04%, proofed that this formula was the most people like among the three formulas. It was found that the granules were not hygroscopic.

Intruduction

Coconut (*Cocos nucifera*) has the ability to maintain healthyness of human being. It often called as the tree of life or the tree of heaven. All parts of the tree have a good use in the society (Wibowo, 2005).

Main product of the coconut tree developed is virgin coconut oil (VCO). Main ingredient of VCO is lauric acid which is a medium Fatty Acid = MCFA. The present of MCFA in VCO can help to prevent and cure various deseases such as cancer, cholesterol, heart desease, diabetes mellitus, HIV/AIDS, stomach problem, obesity and hypertension (Alamsyah, 2005).

VCO has a rather unpleasant smell, therefore, a good preparation was created to overcome the problem. Instant granules are prepared since it has a better colour, smell and interested taste. Besides that it easily dispersed quickly in water (Voigt, 1995).

Methods

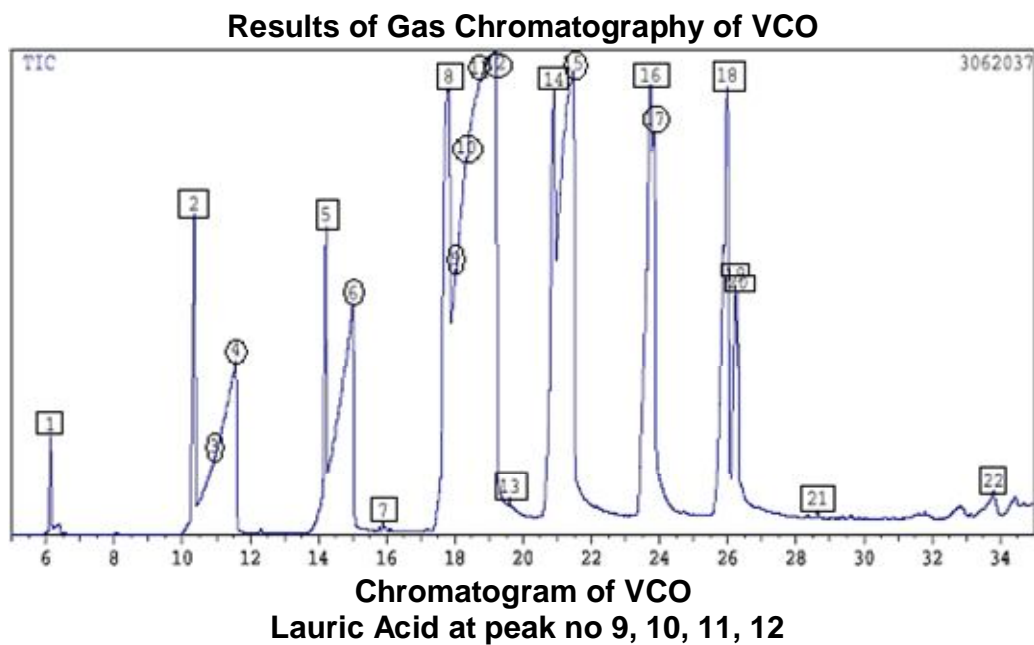
1. Sample collection and preparation
2. Drying of Sweet orange oil and VCO
3. Formulation and granules preparation from VCO
4. Quality control of instant granules
5. Hedonic Test
6. Thin Layer Chromatography
7. Gas Chromatography
8. Physical study of the granul

Formulation of VCO Instant Granules

Ingredients	Formula	Formula	Formula
	1	2	3
	(%)	(%)	(%)
VCO	13,41	13,41	13,41
Aerosil 200	18,82	18,82	18,82
Maltodextrin	14,96	14,96	14,96
Sucrose	30,94	30,94	30,94
Polysorbat 80	7,45	7,45	7,45
Aspartam	0,43	0,70	0,35
Sodium chloride	2,82	2,75	3,3
Polyvinyl pyrrolidone	4,94	4,94	4,94
Perfume	3,19	3,19	3,19
<i>Sweet Orange Oil</i>	3,19	3,19	3,19
Citric Acid	3,04	2,84	2,64

RESULTS AND DISCUSSIONS

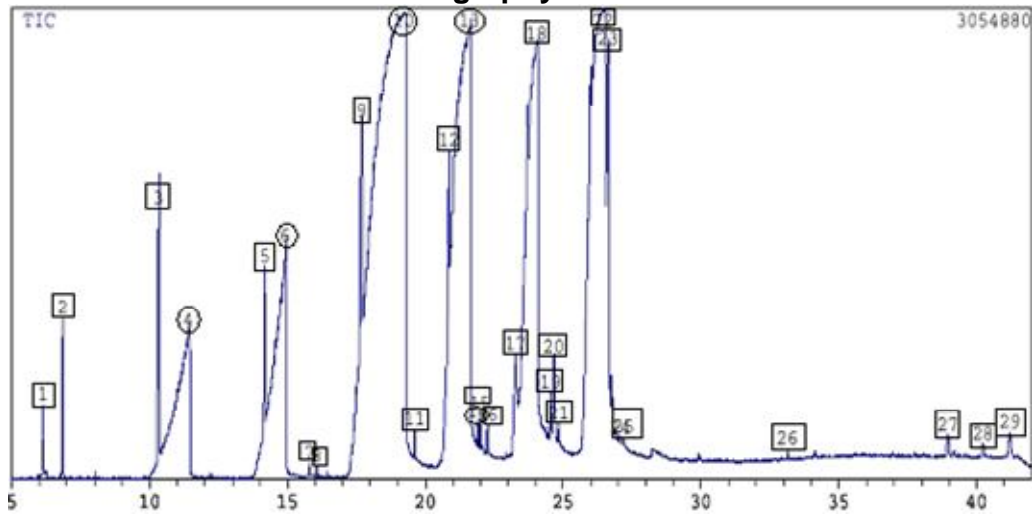
Chromatogram of VCO and Instant Granules



Results of Quality Control of VCO Instant Granules of Formula I

Parameter	Formula
Diameter and Height	1,733 ± 0,06
Flow Density	0,590 ± 0,02
Flowability	15,719 ± 0,5
True Density	0,59 ± 0,004
Tap Density	0,682 ± 0,00
Angle of Repose	22,37 ± 0,83

Results of Gas Chromatography of Instant Granules of VCO



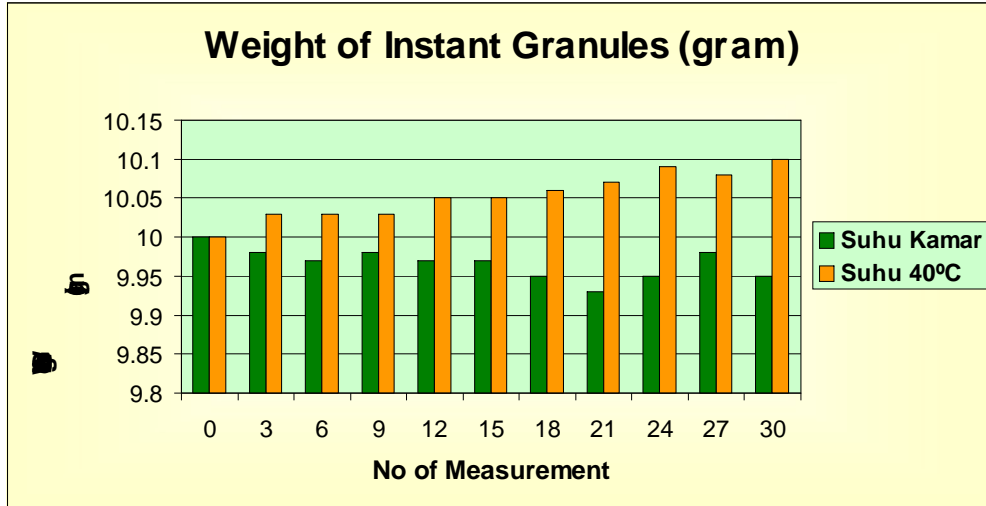
**Cromatogram of Instant Granules of VCO
 Lauric Acid at peak 10**

TLC CHROMATOGRAPH OF VCO AND VCO INSTANT GRANULES



Mobile Phase : Toluene:CHCl₃ (1:1) HAc 0,5 ml
 Fix Solution : Iodine gas, Amylum solution
 Static phase silica gel GF 254

S = VCO, R_f : 0,67
 G = Granules, R_f = 0.66
 A = start
 B = finish



Physical Properties of Instant Granules

Day no	Treatment		
	Temp. and RH Relatives		
	Room temp.	40°C	Room temp 40 C
0	-	-	
3	-	-	
6	-	-	
9	-	-	
12	-	-	
15	-	-	
18	-	-	
21	-	-	
24	-	-	
27	-	-	
30	-	-	

Notes :

- : Granules in dry condition



INSTANT GRANULES



INSTANT GRANULES + WATER

CONCLUSION

1. Formula I was the most favourable according To Hedonic Test with Concentration of aspartam 0,43 %, Sodium chloride 2,82 %, and citric acid of 3,04 %.

2. The quality of granules formula I was good, with angle of repose $22,367^\circ \pm 0,83^\circ$, lost on drying $1,233 \pm 0,153$ %, compressibility $13,48 \pm 0,508$ %, flowability $15,719 \pm 0,5$ gram/sec., viscosity of solution $0,467 \pm 0,03$ dpa, with pH $2,787 \pm 0,006$.

3. Drying of Sweet orange oil (2 part) with Aerosil 200 (1 part) resulted in orange granules containing 66,67 % of Sweet orange oil.

4. Instan Granul of VCO was not hygroscopic.

5. Thin Layer Chromatographic shown that active ingredients in VCO still available in formula

6. Gas chromatography analysis shown that lauric acid found in VCO granules was 57,59 %, and lauric acid was 45,464 %.

It is suggested that study on pharmacological effect of the granules should be carried out. Other Emulsifying Agent should also be tried to disperse VCO.

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