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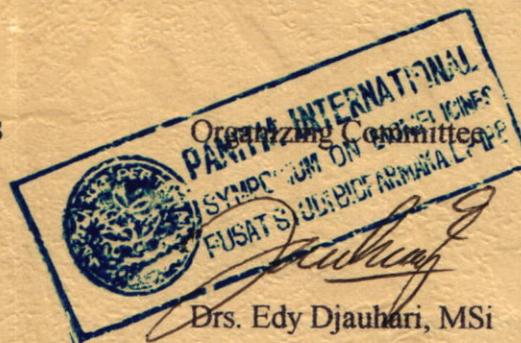
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The Formulation of Granules Effervescent Tea

Teguh Widodo, Lucia Hendriati, Arief Wijayanto

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Abstract

Tea as beverage is one of the most popular drinks and has many advantages for health. Granule effervescent is popular dosage form since its unique and interesting from. This research is try to formulate the tea into the granule effervescent which will become an alternative to serve tea easier and more interesting. The capability of granules to flow at production, pouring process, and bubbles release when granule dissolves are influenced by distribution of granule size and dissolved time. In this research, four granule effervescent formula with variety of PVP K-30 concentration as a binder are made. The granule product are evaluated on its flowability, angle of repose, moisture content, granule size distribution and dissolved time. The result show that the variety of PVP K-30 concentration has a different result on its flowability, angle of repose, moisture content granule size distribution and dissolved time. Between the formulas, formula with 0,5% PVP K-3 0 has a better result.

Key word : tea, effervescent, granule

Introduction

Leaves of tea are known since many centuries have advantage for health. It makes tea become one of the most popular non alcoholic drinks. The constituents in tea leaves are tannin, coffein, theophyllin, theobromin, several vitamins, sugar, pectin and selulosa. (Adisewojo, 1982). Some advantages of tea are analeptic, heart and brain stimulant antioksidant, degenerative preventives, antiviral, antifungal and antibacterial agent (Astuti, 2001, Hamdan & Jonosewojo, 2001).

The increasing in tea consumption needs an inovatif product to make an alternative tea dosage form. In this research, tea will be formulated to be granules of effervescent which is only need water to drink. This dosage form will give comfortable feeling for consumen to making their own dosage and the dissolution will be more faster in hot or cold water.

Granules size distribution and its dissolved time are important characteristic in effervescent system which will control bubbles release, homogeneity, flowability and disintegration effect.

Eksperimental

Material : Tea leaves (*Camellia sinensis*) from PTP XII Bantaran - Blitar and Wonosari Lawang, citric acid, bicarbonat natricum, alcohol 96%, PVP K-30, sucrose.

Equipment : analytical balance (Sartorius - Germany), vacuum rotary evaporator, water bath, chromatography chamber, moisture analyser MA 30 (Sartorius - Germany), volumemeter (Erweka -Germany), termometer, glass equipment.

Method

Herbs were standardized on its organoleptic, microscopic, moisture

content and ashignition. Tea extract was extracted by maserating tea leaves powder with alcohol 70% as solven, using vacuum rotary evaporator.

Granules was made from the formulas below. Fxtract of tea and saccharum lactis were mixed, sieved by siever mesh 40 anddried with oven at 50⁰ C. Half of dried extract were mixed with citric acid, preservatives that solved in alcohol 90%, half of PVP K-30, gmulized by siever mesh 18, dried *with* oven, as an acid phase. Base phase was made from half of dried extract, natrium bicarbonas, aspartam, and half of PVP K-30,

granulized by siever mesh 18, dried with oven. The gramiles product were evaluated on its flowability, angle of repose, moisture content granule size. distribution and dissolved time.

Results

In this research, tea was collected from PTP) (II which is processed to black tea. Determination result from Purwodadi Botanical Garden show that this herb used in this research was tea.

Herbs were standardized on its organoleptic, microscopis and purity. The result showed that this herbs fulfilled the requirement.

Tabel 1. Composition of Formula

Material	Formulas			
	I	II	III	IV
Extract of tea	100/0	100/0	100/0	100/0
Citric acid anhydrous	12,5%	12,5%	12,5%	12,5%
Bicmbonat natricus	15%	15%	15%	15%
PVP K-30	-	0,5%	1%	2%
Aspartam	1%	1%	1%	1%
Methyl Paraben	0,180/0	0,180/0	0,180/0	0,180/0
Propyl paraben	0,02%	0,02%	0,02%	OP020/0
Saccharum lactis	ad 100%	ad 100%	ad 100%	ad 100%

Table 2. Evaluation of herbs

Evaluation	Standard	Result
Moisture content	< 10,0 %	9,40 %
Ashignition	< 7,0 %	6,48 %

Table 3. Evaluation of granules

Evaluation	Standard	F1	F2	F3	F4
Flow time (second)	< 10	7,63+0,12	7,53+0,06	7,90+0,10	7,27+0,06
Angle of repose(°)	25-40-	32,10+1,37	33,51+1,28	34,11+1,58	34,82+1,23
Moisture content (%)	< 10%	9,00+0,74	8,49+0,68	9,09+0,73	9,51+0,50
θ granul -dg (tt)		451,4±20,77	435,93+26,76	552,15+3,14	500,04+3,00
Dissolve time (min)	1-2	1,19+0,04	1,48+0,07	1,74+0,32	2,44 ± 0,13

Granules evaluation showed that flow time, angle of repose and moisture content fulfilled the

requirements. It means that it is not difficult to process granules with high speed machine. Anova statistical test

for diameter of granules shows a significant difference between formulas. Analyzing result with Honestly Significant Difference (HSD) 5% shows a significant difference between formula.

The dissolve time evaluation shows that FIV does not fulfill the requirement. There is a significant difference using anova statistical method. Analyzing result with Honestly Significant Difference (HSD) 5% shows that there is no significant difference between FI and FIL

The diameter of granules and its dissolve time, formula II with 0,5% PVP K-30 as binder give a better result.

Conclusion

Granules Effervescent Tea with 0,5% PVP K-30 as binder give a better result. The best formula of granules effervescent tea is obtained with 0,5% PVPK-30 as a binder.

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