

CREATING CLOVER POWDER HERBAL DRINK

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ABSTRACT

Young generations in Indonesia are mostly consuming imported food and beverage product nowadays. Therefore, food and beverage producer do not prefer to use local ingredients. With the momentum of healthy lifestyle trend in Surabaya, researchers would like to create a beverage product from local ingredients in Surabaya. A clover known in Latin as Marsilea Crenata is usually used as a Pecel Semanggi. Marsilea Crenata has known as a medicine for sore throat, sprue, and fever. It contains high isoflavones. The researchers create the herbal drink by producing clover powder through the stages of drying using dehydrator. The herbal beverage is produced through experimental stages with dry mix and crystallization method. Organoleptic test is used to discover about the taste, aroma, color, and texture of the herbal drink. They are acceptable and 53,3% of panelists like it. Nutrition test is conducted in Balai Riset dan Standardisasi Industri Surabaya to discover the nutrition facts of the herbal drink. The herbal drink contains of 20,62% ash, 7,31% sugar, 1,16% protein, 6,15% carbohydrate, and energy 38,96 kkal/100 g.

Keywords: Clover Powder, Herbal Drink, Organoleptic Tests

INTRODUCTION

The diversity of plants in Indonesia should motivate an entrepreneur to be more creative in utilize it as a culinary ingredient. One of the plants used particularly in the area of Surabaya is clover. Pecel Semanggi Suroboyo is one of the traditional culinary of Surabaya. Most of Pecel Semanggi sellers live in the Kendung area of Surabaya. The area is located in Benowo and very famous as the clover village. Unfortunately, most of the area that used by the residents cultivate the clover have been built into the housing area. Thus, the clover is become closer to the extinction (Widodo, 2002). It is also getting worst because of the unpredictable rainy season in Surabaya nowadays. Moreover, there is lack of demand in Pecel Semanggi. Younger generations have no interest in consuming local products. This also can be an impact of the rise of foreign investment to modern culinary in Indonesia. This situation makes Pecel Semanggi become rare in its origin area.

Aside as Pecel Semanggi Suroboyo, people in Surabaya have known clover which is used as an herbal tea. It is consumed by boiling the leaves that have been cleaned. However, today's young generation is often assumed that herbal drink is a beverage for low social class, while drinks containing milk or other content beverage are segmented to society as middle and upper levels. This is supported by social trend in Surabaya communities who prefer to consume imported drinks which are mostly contain of milk. This fact is supported by the high consumption level of milk per capita in Indonesia compared to nearby countries, such as Malaysia, Thailand, and the Philippines (Herlambang, 2011).

To be able to compete with imported products which are entering Indonesia largely and to raise local food level to be more prominent in the market, it needs an innovation. Product innovation is highly needed because of the increasing of technology nowadays. With so many good benefits obtained in clover as one of the local food ingredients, the authors wanted to do creative efforts by utilizing clover into instant powder as an herbal drink. It is aimed for increasing the value of clover itself.

Supported by the increasing of healthy lifestyle trend among the people of Indonesia, herbal drinks are increasingly required. Trends of consuming this herbal drink is not only happen in Indonesia but also in the international community. Taking this healthy lifestyle societal trends momentum, the author wants to level up a clover into products that will gain respect from Indonesian people. Thus, the authors hope that the clover conservation as a local product can be sustainably maintained, so that it can be utilized as a herbal drink.

Therefore, this study specifically aims to generate the creation of innovative instant powder by (1) determining the process of making instant powder clove, (2) determining the taste, aroma, color, and texture of instant powder clover as an herbal drink through organoleptic test, and (3) determining the nutrient content of instant powder clover as an herbal drink through a laboratory test. Thus, the water popularity as a unique culinary Surabaya will increase and well-known, especially for the younger generation. And of course, it has the implications for the welfare of Pecel Semanggi sellers and the survival clover farmers in the clover village, Surabaya.

LITERATURE REVIEW

Water clover (*marsiela crenata*) has leaves that are round like an umbrella. It consists of four strands which are known as clover leaf. Clover has fibrous taproots. Its trunk is straight and very easily broken with a height of 2 to 18 cm. Clover is included in the *marsileaceae* genus, with the Latin name of the species is *Marsilea Crenata*. Clover is heterospore, where male and female spores into the plant.

Type of clover water used in this study is a *salviniales* group. Clover leave contains high flavonoids, that act as antioxidants and anti-inflammatory. The benefits of clover are as a sore throat, mouth sores, fever, and shortness of breath. In addition, the clover is also contains of isoflavones that can be used as a protection of clinical symptoms of menopause and to prevent osteoporosis. The nutrients of clover can prevent the development of breast cancer cells, tuberculosis and reduce the risk of cancer of lymph in the body. Last but not least, the clover leaf can also be used as a laxative urine (Afriastini, 2003).

According to Dr. Okpara (2007), innovation is an act of increasing the value of existing products, goods and services. One type of innovation is product innovations, by increasing the value of the product characteristics. To produce a product innovation, it needs creativity.

Creativity is the ability to generate a new creation in the form. An innovative product has to be original and appropriate. With the trend of consuming healthy food and drink practically, it takes creativity to produce new creations of herbal drinks. Creating an herbal drink from clover is an innovation step to develop existing local products to be more valuable to the community. Herbal drinks in powder form are easily stored and durable due to low level of water content. Therefore, it is so easily distributed. Herbal drinks are usually made from plant parts, such as roots, stems, leaves, flowers, or tubers. Herbal drink is believed to cure a disease that comes from the active ingredients contained in the plant (Ismiati, 2015). Herbal drink is better known among consumers as a herbal tea. The herbal tea is a mixture of several ingredients of a combination of dried leaves, seeds, grass, bark, fruits, flowers or other botanical elements that produce a particular flavor and nutritious (Ravikumar, 2014).

Christiansen (2010) based on Frutarom (International Flavour House) predicts an increase demand of food and drink taste is more authentic and more natural. In addition, there is an increasing consumer demand for the combination of flavors from the spices which are more conventional. One of them is mint leaves. It has been used in food and beverage products worldwide. The tea is derived from mint leaves are rich in efficacy for relieving stress, digestive problems, and breath fresheners (Ravikumar, 2014). In addition, rosella extract is also used. It is a plant that grows in many countries and has been known as roselle tea. Tea is rich in vitamin C and antioxidants (Wiyarsi, 2013). Rosella will produce a sour taste as a combination of conventional taste.

Consumers are now become smarter and have a good knowledge of food and drink they are consuming. Therefore, the organoleptic test needs to be done to find out the perceptions and preferences of consumers towards a food and beverage products. Organoleptic test to evaluate the acceptance of flavor, aroma, color, texture, and general acceptance of herbal drinks made from water clover. Organoleptic or sensory evaluation is defined as the science that is used to evoke, measure, analyze, and interpret responses to products perceived by the senses of sight, smell, touch, taste, and hearing (Stone and Sidel, 1993).

RESEARCH METHODS

Creating herbal drinks from clover powder could be the answer to the needs of the nutritious and practical drinks in community. The research design uses an experimental study. It is conducted by trial and error steps with certain tools and procedures. Experimental design is the term used for a series of experimental procedures that have been developed to provide as much information as possible at the lowest possible cost (Naes, et al., 2010).

The data processed in this study is an evaluation of panelist feedback. It is derived from the attributes of color, flavor, texture (viscosity), and a sense of instant clover powder as an herbal drink that has received validation from trained panelists conducted organoleptic test. The consumer perception and acceptance data is collected by using a questionnaire. It was distributed to 30 trained panelists as consumer's representatives.

In the process of pulverizing clover, there are some nutritional content keep maintained and destroyed (Field, 2012). To determine the nutrient content contained in instant powder as an herbal drink, the laboratory tested is conducted. It describes the nutrient content in the form of calories, fiber, fat, carbohydrates, sugar, Abu, and Vitamin C.

RESULTS AND DISCUSSION

The experimental process of making elected herbal drinks begins with the process of boiling cleaned dried rosella flower. Then it continues with the addition of clover powder and mint leaf. It has to be boiled. It is continued with the extraction process. The rosella extract, the clover powder and the mint leaves are firstly screened, so that the filtration results no waste. Then add the sugar and heated to the crystallization process.

The heating process is done until it thickened and produces a coarse crystalline powder. Crystalline powder produced is crushed in a blender. This was followed by sieving process to obtain the fine crystalline instant clover powder. The instant clover powder will be having brewing stage if it will be presented as an herbal drink. As much as 53.3% of panelists generally state likes to drink the herbal samples labeled 127. A total of 16.7% sequentially panelists expressed love and a little love. Thus herbal drinks labeled 127 samples can be accepted by the panelists as consumer’s representatives

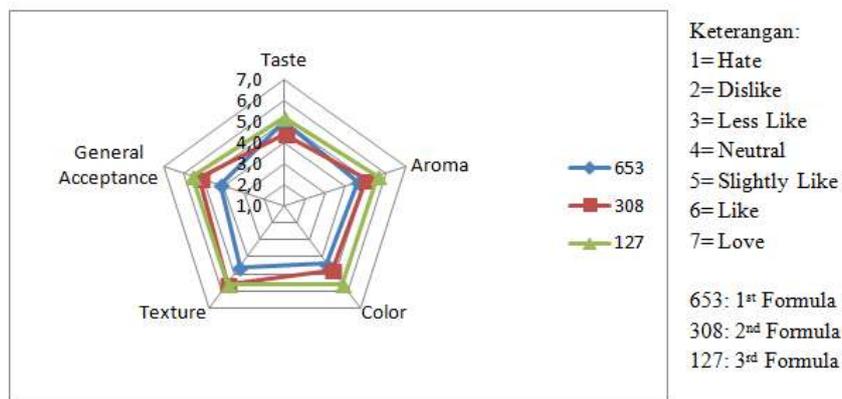


Figure 1. The Average Results of Organoleptic Test by Trained Panelist

Table 1. The Result of Consumer Evaluation

Penerimaan_Umum					Keterangan: 3= Less Like 4= Neutral 5= Slightly Like 6= Like 7= Love
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	3	1	3.3	3.3	3.3
	4	3	10.0	10.0	13.3
	5	5	16.7	16.7	30.0
	6	16	53.3	53.3	83.3
	7	5	16.7	16.7	100.0
Total	30	100.0	100.0		

Hereby the results of herbal drinks' nutrition test done in laboratory:

Table 2. The Herbal Drinks' Nutrition Test Results

Test Parameters	Unit	Test Result (600 ml)	Test Method
Kadar Abu	%	20,62	Gravimetri
Gula total	%	7,31	Luff School
Protein	%	1,16	Kjeldahl
Serat kasar	%	0,09	Gavimetri
Karbohidrat	%	6,15	Luff School
Lemak	%	1,08	Weibull
Kalori	Kkal/100 g	38,96	Perhitungan

From the results above, as much as 20.62% ash content indicates the amount of mineral content in the clover herbal drink. Vitamin C content on the herbal drinks undetected. It might be caused by phase of heating during the manufacturing process which causes the content of vitamin C evaporates.

CONCLUSION

The clover powder has been successfully well processed into herbal drinks that safe to be consumed. Crystallization method is more suitable for the process of creating instant powder clover as an herbal drinks. The success of creating herbal drinks from clover will optimized the clover leaves utilization. Thus, people have another choice of innovative product in consuming herbal drinks, which are rich in benefits. It could be consumed easily without disrupting the daily routine, so that the body health will keep maintained. In addition, the creation has become an alternative herbal beverage drink that can be consumed by the younger generation.

It is advisable for the future studies in using palm sugar and honey instead of sugar, so as herbal drinks from instant clover powder can be enjoyed by consumers who are older or have diabetic history. Moreover, it other methods, such as vacuum drying or freeze drying can be used in creating this product, so that the vitamin content is well maintained. It is also suggested to use other local plants, the leaves part only, just as the main ingredient used as an herbal drink. It should certainly become a practical and acceptable product for the larger society.

REFERENCES

- Afriastini, J.J., 2003. *Marsilea crenata* C. Presl. In: de Winter, W.P. & Amaroso, V.B. (Editors). *Plant Resources of South-East Asia No 15(2). Cryptogams: ferns and fern allies*. Bogor: LIPI.
- Akbar, Abdul A., Achmad Yanu Alif Fianto, Sutikno. 2014. "Penciptaan Buku Referensi Masakan Semanggi sebagai Upaya Pelestarian Kuliner Tradisional Surabaya". *Jurnal*

Art Nouveau. Vol.3, No.1.

- Badan POM RI. 2006. *Acuan Sediaan Herbal*. Balai Besar POM Makasar. <http://perpustakaan.pom.go.id/ebook/Acuan%20Sediaan%20Herbal>
- Champion P.D., Clayton J.S., 2001. *Border Control for Potential Aquatic Weeds*. New Zealand: Department Conversation.
- Christiansen, Suzanne. 2010. *Flavours and Colors*. Colourful Business. In Dairy Industries International (April). www.dairyindustries.com
- Fisher, Carolyn. Scot, Thomas R. 1997. *Food Flavours: Biology and Chemistry*. UK: RSC Paperbacks.
- Ismiati, Erna Retno (2015) *Aktivitas Antioksidan Minuman Herbal Rambut Jagung Dengan Variasi Kondisi Dan Lama Perebusan*. Skripsi thesis, Universitas Muhammadiyah Surakarta.
- Kementrian Perdagangan RI. 2015. *Warta Ekspor*. Ditjen PEN/WRT/39/V/2015 edisi Mei.
- Mc Williams, Margaret. 2008. *Foods Experimental Perspectives, 6th Ed*. New Jersey: Pearson Prentice Hall.
- Naes, Tormod. Brockhoff, Per B. Tomic, Oliver. 2010. *Statistic for Sensory and Consumer Science*. UK: John Wiley & Sons Ltd.
- Okpara, Friday O. 2007. "The Value of Creativity and Innovation in Entrepreneurship". *Journal of Asia Entrepreneurship and Sustainability*. Vol 3 (2), 2007.
- Ravikumar. 2014. "Review on Herbal Teas". *Journal of Pharmaceutical Sciences and Research*. Vol 6 (5), 2014, 236-238.
- Rengga, Wara D.P. dan Prisma Astuti Handayani. 2010. "Serbuk Instan Manis Daun Pepaya sebagai Upaya Memperlancar Air Susu Ibu". *Jurnal Penerapan Teknologi dan Pembelajaran*. Vol.8, No.1.
- Santoso, Singgih. 2010. *Statistik Multivariat Konsep dan Aplikasi dengan SPSS*. Jakarta: PT Elex Media Komputindo.
- Stone, H and Sidel, JL. 1993. *Sensory Evaluation Practices. 2nd ed*. Academic Press: San Diego.
- Sulistiono, Widi. 2009. *Analisis Mikroskopis dan Vitamin Semanggi Air Marsilea crenata Presl. (Marsileaceae)*. Bogor: Institut Pertanian Bogor.

Vieira, Ernest R. 1996. *Elementary Food Science*, 4th Ed. USA: Chapman & Hall.

Widodo, Dukut Imam. 2002. *Soerabaia Tempo Doeloe*. Surabaya: Dinas Pariwisata.

Wijoyo, Nani Muliani. 2011. *Pelaksanaan Pengembangan Produk Minuman Serbuk Instan Angkak-Jambu Biji serta Hard Candy Jahe di PT Industri Jamu Borobudur Semarang*. Semarang: Universitas Katolik Soegijapranata .

Wiyarsi, Antuni. 2013. *Khasiat Bunga Rosella*. <http://staff.uny.ac.id/sites/default/files/tmp/PPM%20Bunga%20Rosella>