Central Java's Contribution in Producing Herbal Ingredients and Strategies for the Existence and Increasing Competitiveness of Jamu as Indonesian Drinks

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ABSTRACT

Indonesia is a spice producer that is proven to be able to export it. It is not surprising that this statement is supported by the number of regions that produce spices, one of which is in the province of Central Java. This study aims to raise the existence of herbal medicine in the national circle by looking at the contribution of Central Java as a supplier of herbal ingredients and how to increase the competitiveness and selling power of herbal medicine in today's generation. This study uses secondary data originating from the Central Java Provincial Statistics Agency. The data analysis method used is contribution analysis.Based on the results of the study, it can be seen that the highest contribution of ginger in Central Java occurred in 2010 with a contribution of 28.64. The average contribution or contribution of the Province of Central Java to the total production of ginger in Indonesia is 18.85. Judging from the production of galangal in the province of Central Java, it is also quite good with an average contribution of 24.20. The production of kencur and turmeric in Central Java Province is also quite good with an average contribution of 25.36 and 21.67, respectively. If you compare the contribution scores of the four commodities, kencur has the best contribution value. Existence strategies and increasing competitiveness of herbal medicine in Central Java Province can be done in various ways, one of which is by forming a herbal tourism village or herbal medicine industry center.

Keywords: *Central Java, contribution, herbal medicine*

INTRODUCTION

One of the producers of spices that is recognized by the world is Indonesia. Spices have actually been contested by all parts of the world because this commodity has a high selling value. Indonesian spice export data shows that up to April it was recorded at US$218.69 million. This figure starts from January 2020 so it only takes four months. The use of this spice is used by many people around the world as a complementary component and flavor enhancer. In addition to this, with the Covid-19 pandemic, many spice commodities have suddenly become a public favorite because they have many benefits for human health. This is supported by the increase in human nature to maintain their health because of the fear of contracting COVID-19. Of course, consuming various kinds of spices that are used as processed food in the form of food and drinks makes herbal components as natural ingredients enter and be absorbed by the body. Initially, the use of this spice was widely used because the price was friendly and certainly had a positive impact and it was not difficult to find it. People know that the processed spices are known as herbs that are often consumed by the community. This jamu has become a typical Indonesian drink and is used as a traditional drink. However, along with the development of the times, many young people do not like this drink because they have not tried it. This is added by the

seller of carrying jamu which has begun to decrease in the community. The dislike of jamu is also due to the bitter taste so that this taste is less familiar to the tongue of today's generation of children. The rare method of packaging that is still traditional makes this drink begin to be abandoned and its existence begins to be replaced with other popular drinks (1).

Medicinal preparations of various types and plant materials then combined with minerals are the meaning of jamu. This drink has distinctive and useful benefits for the treatment of various diseases and as an individual effort to maintain a healthy body. MSMEs that work with herbal products are widely spread in Indonesia, one of which is in Central Java Province and several locations in it such as in Sukoharjo Regency and Magelang Regency. But over time. Many jamu businesses are no longer active today due to many factors. The factor in question is divided into several aspects such as the next generation of industry that is starting to decrease and limited capital (2).

The thing that can be done in an effort to maintain the existence of a product so that it has important value and is noticed by consumers is by innovating. Innovation usually develops along with the concepts of change that are booming. Of course, good innovation must be supported by a good market and marketing strategy (3). The innovation step will add added value to the products to be sold in certain markets. Good strategic management must also be followed by making the right decisions so that the goals and targets are in accordance with the initial goals that have been determined.

jamu which in fact is a true ancestral heritage must be used from time to time and regenerated so that it is not lost. The development of science and technology coupled with globalization makes jamu not only as a prevention of herbal medicine but also consumed as a habit. Especially with the rampant cases of the Covid-19 pandemic that never ends. The existence of this makes jamu should be able to increase its prevalence for its usefulness as a multipurpose drink. (4). Making jamu should not be a problem because in Indonesia there are more than 9000 medicinal plants that can be combined as basic ingredients for making jamu. As an original product from Indonesia and the area in it, jamu is even known in some parts of the world (5).

Central Java is designated as an area with a focus on driving national industrial and service activities. This is not without reason by looking at Central Java which has a lot of potential that can be used as a supporting asset, especially for jamu and traditional medicine. Especially in the areas of Solo and Sukoharjo, for example, which have various brands and even some products already have intellectual property in terms of the basis of traditional herbal ingredients. For this reason, this potential should be exploited into a positive matter, for example in terms of economic development. This study aims to raise the existence of jamu in the national circle by looking at the contribution of Central Java as a supplier of herbal ingredients and how to increase the competitiveness and selling power of jamu in today's generation.

METHOD

This research uses descriptive analytical method. This method is used to explain the problem using the analysis of existing data. The problem in this research is the desire to develop jamu in Central Java, so it is necessary to first look at the existence of stocks of herbal ingredients. The data used are secondary data sourced from the Central Java Province Statistics Center and other relevant sources. The

analysis used to see the presence of the stock of these herbal ingredients uses contribution analysis and trend analysis. The mathematical written contribution analysis is as follows (6).

$$Z = A/B \times 100\%$$

Information :
Z = Contribution (%)
A = Central Java Production
B = Total Indonesian Production

To test the production trend of several herbal raw material plants in Central Java Province, the least squares method (least Square) is used, with the following equation:

$$Y = a + bX$$

Where :
Y = Production to be searched for.
X = Time

To find the value of the constant a = intercept and parameter b = trend, where (+) means production goes up, and (-) means production goes down, the following equation can be used:

$a = Y/N$
$b = XY/\sum X2$

RESULT

A. Production of Herbal Raw Materials in Central Java Province

Herbal raw materials are basically formed from various components of plant commodities. The raw materials in question are ginger, laos/galangal, kencur and turmeric. These raw materials are usually combined with other ingredients to form processed herbal drinks that are commonly consumed by the people of Central Java. This province actually has sufficient land area to produce herbal raw materials, so it is not surprising that many other regions take their supply of herbal raw materials from the province of Central Java. The following is the production of herbal raw materials from 2010 to 2021 in the table below when compared to other provinces on the island of Java

Table 1. Ginger Production in 2010 to 2021 Central Java Province and Other Provinces on Java Island

Province	Ginger (Ton)											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
DKI JAKARTA	19	24	25	19	18	10	5	28	14	9	4	2
EAST JAVA	14107	19725	18729	22957	22584	66409	63520	33966	26967	34078	34910	43833
CENTRAL JAVA	30861	20639	26175	33760	42363	40302	48422	45353	39198	27071	31667	39087
DI YOGYAKARTA	1844	2021	2261	2775	3374	4617	4918	8545	5456	4550	4532	5121
WEST JAVA	18445	14564	17465	44263	81081	77541	100994	65083	77241	49092	45093	27595
BANTEN	1215	1109	1281	2906	2896	1247	1665	1127	682	848	1177	1927

Based on table 1, we can see that there are several provinces on the island of Java that have the production of herbal raw materials, namely ginger, every year. If we look at the data in table 1, we can conclude that Central Java Province is actually far superior in producing ginger until 2012 but the rest is dominated by East Java Province in ginger production. This means that production in East Java is growing rapidly from year to year while production in Central Java tends to be stable. However, when compared to other provinces in terms of ginger production, such as Yogyakarta as the closest location, Central Java Province still has advantages in ginger production. Therefore, it could be if this product has national competitiveness or

what is commonly known as competitive competitiveness. if the acquisition of ginger production in Central Java is compared to DKI Jakarta province, the production gain is very much different. This indicates that Central Java plays a role as one of the ginger producing regions, while DKI Jakarta is a market share for ginger consumption which is quite large. This condition also occurs when comparing the production of ginger in Central Java and Banten, which has quite a large difference in production.

Table 2. Galangal Production in 2010 to 2021 Central Java Province and Other Provinces on Java Island

Province	Galangal (Ton)											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
DKI JAKARTA	7	8	28	13	20	8	3	15	10	9	4	2
EAST JAVA	8461	10622	9961	8470	9518	5349	7614	10092	14868	17569	13095	19386
CENTRAL JAVA	15881	10946	14231	19581	18306	13056	14594	15769	18766	18682	14359	13036
DI YOGYAKARTA	3026	3066	2950	2813	1595	1246	1279	1328	1191	1197	1150	1225
WEST JAVA	6649	6789	7838	13282	7220	10211	11562	14207	14613	13560	17560	16303
BANTEN	2873	3355	3285	3135	3437	4356	4705	3641	2149	1708	2093	2635

Galangal is also a prima donna ingredient in making processed nutritious drinks such as jamu in addition to using ginger. Table 2 indicates that there are many provinces that produce these raw materials, some of which are areas on the island of Java. Looking at the numbers listed in table 2, it can be seen that Central Java dominates in galangal production when compared to other provinces such as East Java and West Java. With the abundance of galangal production, it must be balanced with good demand from other locations such as Yogyakarta, which is close to Central Java. On this basis, it means that there is still potential in the development of galangal, especially as a raw material for making jamu.

Table 3. Kencur Production in 2010 to 2021 in Central Java Province and Other Provinces in Java Island

Province	Kencur (Ton)											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
DKI JAKARTA	4	4	6	5	1	2	1	5	3	3	2	0
EAST JAVA	5817	8794	9024	7066	3502	4314	2913	4809	4790	6857	6883	9791
CENTRAL JAVA	6209	8397	11684	13625	10100	8765	8691	7581	7299	8854	12852	15612
DI YOGYAKARTA	1825	1510	1654	1827	1886	2097	2087	1924	1907	1869	1742	1875
WEST JAVA	3934	2815	3466	4310	3714	4839	5185	4945	8760	3802	9141	3574
BANTEN	1246	1185	1718	1865	925	1160	1072	494	737	538	1004	1749

Based on table 3 regarding kencur production, Central Java Province is still at the top compared to other provinces in Java Island. In 2014 kencur production in Central Java Province reached its peak with a production volume of 10,100 tons. When compared with other provinces, the acquisition of production is still far away. For example, the comparison of kencur production between Central Java and DKI Jakarta and Banten. DKI Jakarta had the highest production of kencur in 2012 while Banten had the highest in 2013 but both of them had production of kencur which was very far from Central Java's kencur production. This is because the two

regions are market share of processed kencur product sales. Kencur is used as the main ingredient in making rice kencur herbal medicine that many people like. The resulting efficacy creates a feeling of warmth after drinking it, making this drink popular with people of a certain age.

Table 4. Turmeric Production in 2010 to 2021 in Central Java Province and Other Provinces on Java Island

Province	Turmeric (Ton)											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
DKI JAKARTA	12	14	22	20	12	6	3	17	9	8	3	1
EAST JAVA	11983	9489	19716	10264	7340	10066	9758	7828	14184	21196	16999	20047
CENTRAL JAVA	28139	18928	20362	38159	38933	28574	27612	27908	25748	23457	30059	20273
DI YOGYAKARTA	4797	4220	4462	4401	3215	3014	2929	3116	3147	3102	3085	3374
WEST JAVA	23180	22943	22031	30522	24348	37504	33326	57173	117108	91940	102723	82988
BANTEN	2065	814	2694	1326	2176	1381	1450	813	856	1005	1186	668

Turmeric is also used as a raw material in the manufacture of herbs other than ginger, galangal and kencur. If you look at table 4, it can be seen that Central Java has dominated for several years in obtaining the highest turmeric production and is able to compete with East Java Province which also has no less good production. The resulting production is quite stable but needs to be increased considering the large demand in line with the Covid-19 pandemic.

B. Production Trend of Herbal Raw Materials in Central Java Province

Trend analysis is needed to project in the future whether the products produced are able to meet the existing demand. This projection is needed so that farmers are able to prepare themselves for the cultivation of the plants needed. That way the price formed will be stable if production is balanced with existing demand. The trend analysis can be seen in the image below.

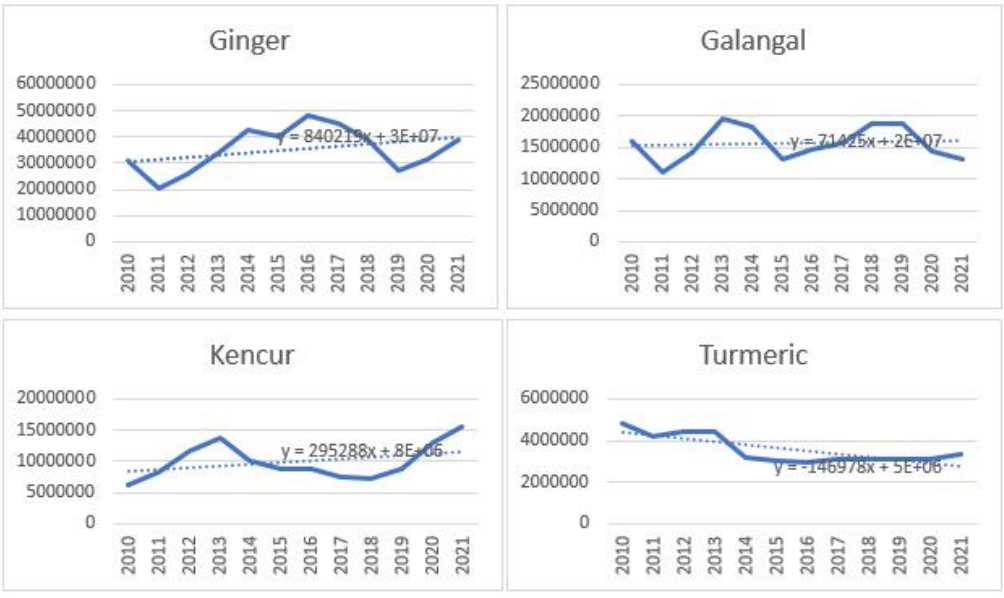

Figure 1. Production Trend of Herbal Raw Materials in Central Java Province

Looking at the trends shown in Figure 1, we can conclude that the production of herbal raw materials for ginger, laos, kencur and turmeric has a pretty good trend. If you look at the value, only turmeric production tends to decrease, but ginger and kencur production is predicted to increase in the following year. This must be balanced with the existing demand so that farmers still get a decent price. Of course, if the availability of raw materials is excessive and not absorbed, the price will go down, so the government needs to cooperate with many people so that many people drink jamu so that the production of these raw materials is well absorbed.

C. Central Java's Contribution in the Production of Herbal Raw Materials

The need to calculate the contribution of production of biopharmaceutical plants used as jamu in Central Java Province to see how big the contribution of Central Java province in supplying needs and meeting demand. The greater the value of the contribution, the better the contribution made by the area. The production contribution compares Central Java's production with the total production in Indonesia.

Table 5. Contribution of Ginger Raw Material Production in Central Java Province 2010-2021

Province	Ginger (Ton)											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Central Java	30861	20639	26175	33760	42363	40302	48422	45353	39198	27071	31667	39087
Indonesia	107735	94743	114538	155286	226115	313064	340341	216587	207412	174380	183518	307242
Contribution	**28.64**	**21.78**	**22.85**	**21.74**	**18.74**	**12.87**	**14.23**	**20.94**	**18.90**	**15.52**	**17.26**	**12.72**

Based on table 5, we can see that if we evaluate the contribution as an indicator, many of them are under 35% or are said to be low, but if you look at the number of provinces in Indonesia, the contribution rate is quite significant. Central Java Province's biggest achievement occurred in 2010 which was able to supply ginger plants to all the needs in Indonesia reaching 28.64%. This figure is obtained by dividing ginger production in that year divided by the total ginger production throughout Indonesia, then multiplied by 100 percent. For example, in 2010 the acquisition of ginger production in Central Java was 30,861 tons divided by the acquisition of ginger in the same year in 2010 of 107,735 tons, then multiplied by 100 percent and the contribution of Central Java ginger was 28.64%. However, these gains tend to decrease until 2021, where only 12.72 percent of ginger production will be contributed. This indication can occur for several reasons, such as the large number of farmers switching to other commodities or the large number of land conversions that have occurred in Central Java.

Table 6. Contribution of Galangal Raw Material Production in Central Java Province 2010-2021

Provinsi	Galangal (Ton)											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Jawa Tengah	15881	10946	14231	19581	18306	13056	14594	15769	18766	18682	14359	13036
Indonesia	58962	57701	58186	69730	62521	55150	59453	63536	70015	75385	68659	76745
Contribution	**26.93**	**18.97**	**24.46**	**28.08**	**29.28**	**23.67**	**24.55**	**24.82**	**26.80**	**24.78**	**20.91**	**16.99**

Based on table 6 it can be seen that Central Java Province also has a pretty good contribution to supply the needs of galangal. The highest achievement was in 2010 and in 2018 which reached 26%. This figure is obtained by dividing galangal production in 2018 of 18,766 tons divided by the total acquisition of all regions in Indonesia in the same year of 70,015 tons of galangal multiplied by 100 percent so that the contribution of Central Java Province in producing galangal in 2018 is 26.80%. This contribution indicates that the cultivation results of farmers in Central Java Province, especially in cultivating galangal, are quite successful. However, keep in mind that there have been some declines in production in certain years which should have stabilized. For example, in 2021 the figure will actually decrease to below 20%, even though for more than 10 years, the contribution of Central Java Province has always been in the range of above 20%.

Table 7. Contribution of Kencur Raw Material Production, Central Java Province 2010-2021

Province	Kencur (Ton)											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Central Java	6209	8397	11684	13625	10100	8765	8691	7581	7299	8854	12852	15612
Indonesia	29638	34017	42626	41343	37716	35972	36523	36655	35967	35296	44824	54409
Contribution	**20.95**	**24.69**	**27.41**	**32.96**	**26.78**	**24.37**	**23.79**	**20.68**	**20.29**	**25.09**	**28.67**	**28.69**

Based on table 7, it can be seen that the contribution of Central Java Province in responding to consumer demand for kencur needs is quite good. This is indicated by the acquisition of contributions which are always in the range of more than 20%. The meaning of these figures indicates that Central Java Province is capable of producing kencur well. The local government must be more agile in assisting farmers in Central Java Province in developing these herbal-based products so that they remain sustainable. If you look at the contribution value of Central Java Province in producing kencur the highest occurred in 2013 at 32.96% followed by 2018 at 28.67%. Comparing the contribution of kencur with other commodities, the contribution of kencur production tends to be better and more stable. A contribution of 28.67% in 2018 was obtained by dividing the Central Java kencur production of 7,299 tons with kencur production throughout Indonesia of 35,967 tons.

Table 8. Contribution of Turmeric Raw Material Production in Central Java Province 2010-2021

Provinsi	Kunyit (Ton)											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Jawa Tengah	28139	18928	20362	38159	38933	28574	27612	27908	25748	23457	30059	20273
Indonesia	107375	84803	96979	120726	112088	113101	107302	128329	203458	190909	193583	184826
Kontribusi	**26.21**	**22.32**	**21.00**	**31.61**	**34.73**	**25.26**	**25.73**	**21.75**	**12.66**	**12.29**	**15.53**	**10.97**

Table 8 shows that Central Java Province has a significant contribution in producing herbal raw materials in the form of kuniy. The highest recorded acquisition was in 2014, which almost reached 35%, 34.73% to be precise. This figure is obtained by dividing turmeric production in Central Java in 2014 of 38,933 tons

divided by the acquisition of turmeric production in all regions in Indonesia in the same year, namely 112,088 tons. This figure is very high considering that many locations in Indonesia and Central Java contribute more than a third of the total production of turmeric in Indonesia.

DISCUSSION

Seeing the production of Central Java province is quite good in producing biopharmaceutical plants which are the raw materials in making jamu such as ginger, galangal, kencur and turmeric. It is necessary to maintain production by emphasizing farmers who are used to cultivating so as not to switch to other commodities. Therefore, it is necessary to provide briefing on the strategy of existence and increasing competitiveness that can be done by the province of Central Java.

Based on the previous discussion, we can see that the production of herbal raw materials in the form of ginger, galangal, kencur and turmeric in Central Java Province is very good. This makes the potential that Central Java Province can be used as a center for developing commodities that are used as raw materials for jamu. There needs to be several locations that should be used as national herbal medicine centers, for example, in the Magelang or Sukoharjo areas, where there are indeed many herbal sellers and herbal consumers there. In addition to making a herbal medicine center, it can also be used as a herbal tourism village so that it has its own icon, even if it needs to be used as a place for education for anyone who wants to learn about jamu (7). Innovation for herbal products also has to be developed because these components are a must to maintain the existence of jamu. The innovation of herbal products that are starting to disappear is known by the younger generation, making innovation a solution in itself. For example, making herbal products into various other preparations such as candy and ice cream (8).

CONCLUSION

Based on the results of the study, it can be seen that the overall contribution of production of biopharmaceutical plants in Central Java Province is quite good, especially for several commodities such as ginger, kencur, turmeric and galangal. The highest contribution of ginger in Central Java occurred in 2010 with a contribution of 28.64. The average contribution or contribution of the Province of Central Java to the total production of ginger in Indonesia is 18.85. Judging from the production of galangal in the province of Central Java, it is also quite good with an average contribution of 24.20. The production of kencur and turmeric in Central Java Province is also quite good with an average contribution of 25.36 and 21.67, respectively. If you compare the contribution scores of the four commodities, kencur has the best contribution value. Existence strategies and increasing competitiveness of jamu in Central Java Province can be done in various ways, one of which is by forming a herbal tourism village or herbal medicine industry center.

REFERENCES

1. Istiqomah, AD. Dewanti, AAP. Izzalqurny, ITP. (2022). Analisis Studi Kelayakan Bisnis Jamu Tradisional (Handmade). Prosiding National Seminar on Accounting, Finance,and Economics (NSAFE), 2022, Vol. 2 No. 1, Hal 25-33
2. Munica, R. D., Ulya, M., & Fakhry, M. (2017). Analisis Strategi Pengembangan Industri Jamu Tradisional Di Kabupaten Bangkalan - Madura. Agrointek, 11(2), 84. https://doi.org/10.21107/agrointek.v11i2.3057

3. Prihapsara, F., & Artanti, A. N. (2016). Inovasi jamu dalam kemasan siap minum sebagai upaya meningkatkan pola konsumsi jamu dan pemberdayaan masyarakat di kecamatan jaten. Seminar Nasional Dan Gelar Produk, 24–33.
4. Prabawani, B. (2017, March 25). Jamu Brand Indonesia: Consumer Preferences and Segmentation. Archives of Business Research, 5(3), 80 - 94. doi:10.14738/abr.53.2841
5. Neubauer, I. L. (2012, February 29). TIME. Retrieved from Jamu: Why Isn't Indonesia's Ancient System of Herbal Healing Better Known?: http://content.time.com/time/world/article/0,8599,2107489,00.html
6. Saputro, WA. Purnomo, S. Salamah, U. (2021). Contribution of Agroforestry Plants to Farmers' Income in Nglanggeran Agricultural Technology Park. E3S Web of Conferences 305, 06001
7. Elwisam, E., & Lestari, R. (2019). Penerapan Strategi Pemasaran, Inovasi Produk Kreatif Dan Orientasi Pasar Untuk Meningkatkan Kinerja Pemasaran Umkm. Jurnal Riset Manajemen Dan Bisnis (JRMB) Fakultas Ekonomi UNIAT, 4(2), 277–286. https://doi.org/10.36226/jrmb.v4i2.265
8. Ratnawati, S., Handayani, D., & Rakhmawati. (2013). Pengembangan Tradisi Meramu Jamu Sehat Wanita Madura Dalam Upaya Meningkatkan Kesehatan Masyarakat (The Development Of Traditional Herbal Drink By Maduranese Women As An Attempt To Improve The Health Of Society) Sri Ratnawati Departemen Sastra Indonesia. Mozaik, 13(1), 74–87.