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ANALYSIS OF INDONESIAN CINNAMON EXPORT COMPETITIVENESS IN THE INTERNATIONAL MARKET

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ABSTRACT

This study aims to describe the development of cinnamon and analyze the competitiveness of Indonesian cinnamon exports in the international market. The method used is the Revealed Comparative Trade Advantage (RCTA) to analyze competitiveness in terms of comparative advantage, and the Export Competitiveness Index (XCi) to measure competitiveness in terms of competitive advantage to assess Indonesia's relative competitiveness compared to competing countries such as Sri Lanka, China, Vietnam, and Saudi Arabia. The data used is time series data from 2000 - 2022 from the Central Statistics Agency (BPS), the Food and Agriculture Organization (FAO), and trade reports from the World Trade Organization (WTO). The results of the analysis show that in terms of comparative advantage, Sri Lanka's RCTA value has the highest RCTA value (867.535), followed by Indonesia (21.815), Vietnam (18.663), China (1.507), and Saudi Arabia (-1.925). In terms of competitive advantage, the highest XCi value is held by Saudi Arabia (1.729), followed by Vietnam (1.096), China (1.024), Indonesia (1.008), and Sri Lanka (0.981). This finding shows that although Indonesia has a strong comparative advantage, its competitive advantage tends to be low. To increase competitiveness, a comprehensive strategy is needed to increase production efficiency, invest in post-harvest technology, and strengthen more proactive export policies
Keywords: Export Competitiveness, International Market, RCTA, XCi

INTRODUCTION

Globalization and liberalization of international trade have opened up new opportunities and challenges for developing countries, including Indonesia. In this era of economic openness, cross-border trade has become the driving force of economic growth and the main source of foreign exchange. Exports not only function as a tool to generate foreign exchange for the country, but also as an indicator of national economic integration into the global value chain (Halwani and Nianggolan, 2002). Amidst these dynamics, increasing export competitiveness is crucial to ensure that domestic products can not only meet global market demand but also compete with similar products from other countries.

According to FAO 2024 data, Indonesia is one of the largest producers of cinnamon (Cinnamomum burmanii) in the world, contributing around 20% of global production with a production of 80,000 tons per year. This commodity is a source of economic growth in several regions, such as Kerinci (Jambi) and West Sumatra, where smallholder plantations dominate 95% of the total land area (Directorate General of Plantations, 2022). However, despite having a comparative advantage based on natural resources, Indonesia has not been able to transform it into a competitive advantage in the global market. Based on FAO 2024 data, the export value of Indonesian cinnamon in 2022 only reached US$131.4 million, far below Sri Lanka which exported US$232.3 million even though the volume was lower (FAO, 2024). This phenomenon reflects Indonesia's dependence on raw material exports and the lack of processing of value-added products, such as essential oils or cinnamon powder, which are dominated by competing countries such as Sri Lanka (Cinnamomum zeylanicum) and Vietnam (Cinnamomum loureiroi).

Indonesia has enormous potential in cinnamon production, but there are several strategic challenges that must be overcome, including the dominance of competing countries such as Sri Lanka and Vietnam, which have succeeded in creating higher export value even though their production is not always greater. Global trade liberalization has tightened competition, where countries with strong downstream industries such as China and Vietnam have been able to penetrate the premium market through product differentiation. Meanwhile, Indonesia is still constrained by fragmentation of production systems, low adoption of post-harvest technology, and the absence of international certification that guarantees quality (Rochdiani & Wulandari, 2023). Previous studies by Mubarokah & Nurhayati (2020) and Rambe & Malau (2022) have identified macro factors such as exchange rates and GDP as drivers of exports, but have not touched on an in-depth analysis of competitiveness based on comparative and competitive advantages simultaneously.

Comparative advantage emphasizes production efficiency and a country's ability to produce products at a relatively lower cost than its competitors. In the context of cinnamon, indicators such as Revealed Comparative Trade

Advantage (RCTA) are used to measure the extent to which Indonesia is able to utilize its natural resources and geographical advantages to produce products that have more value in the international market. On the other hand, competitive advantage emphasizes the ability of products to compete in the global market through innovation, quality, and adjustment to the needs of international consumers. The Export Competitiveness Index (XCi) is one of the analytical tools used to assess export performance in dynamic aspects, which reflects the market response to product innovation and marketing strategies (Porter, 1998).

This study aims to examine in more depth the dynamics of Indonesian cinnamon export competitiveness by comparing Indonesia's competitive position against competing countries, namely Sri Lanka, China, Vietnam, and Saudi Arabia. By using a quantitative approach through the RCTA and XCi methods. The results of the analysis are expected to be the basis for formulating strategic policies that can increase the added value of cinnamon products and expand global market penetration. In addition, the findings of this study are also expected to contribute to enriching the literature on the competitiveness of plantation commodity exports, especially in facing the era of free trade and increasingly intense global competition.

RESEARCH METHOD

This study uses a quantitative method using the Revealed Comparative Trade Advantage (RCTA) formula to assess comparative advantage and using the Export Competitiveness Index (XCi) formula to assess competitive advantage. This study uses secondary data in the form of time series data for the period 2000 - 2022 collected from various international trade sources, including reports from the Central Statistics Agency (BPS), the Food and Agriculture Organization (FAO), and the World Trade Organization (WTO). The RCTA formula can be mathematically formulated as follows:

RCTA = RXA - RMP

RXAia (a1,a2,a3,a4,a5) = (Xia/Xi(wa)) / [X(ki)a / X(ki)(wa)]

RMPia (a1,a2,a3,a4,a5) = (Mia/Mi(wa)) / [M(ki)a / M(ki)(wa)]

Information:

RCTA	= Revealed Comparative Trade Advantage
RXA	= Revealed Export Competitiveness
RMP	= Revealed Import Penetration
a	= Country a (Indonesia, Vietnam, China, Sri Lanka, Saudi Arabia)
i	= Cinnamon
k	= All types of goods including i
w	= World
Xia	= Exports of goods i by country a
Mia	= Imports of good i by country a
Xi(wa)	= Total exports of good I by country A
Mi(wa)	= Total imports of good I by country A
X(k – i)a	= Total exports of goods other than i by country a
M(k – i)a	= Total imports of goods other than i by country a
X(k – i)(wa)	= Total exports of goods other than i by country other than a
M(k – i)(wa)	= Total imports of goods other than i by country other than a

If the Revealed Comparative Trade Advantage (RCTA) value ≥ 0 or positive, it has high competitiveness in cinnamon trade in the international market (Advantage). However, if the value ≤ 0 or negative, the country does not have competitiveness in cinnamon trade in the international market (Disadvantage).

The XCi formula can be formulated mathematically, as follows:

$$\mathrm{XCi} = \frac{(\mathrm{Xia}/\mathrm{Xiw})\ \mathrm{t}}{(\mathrm{Xia}/\mathrm{Xiw})\mathrm{t} - 1}$$

Information:

Xia	= Export value of wood commoditiessweet by country a
Xiw	= World export value of wood commoditiessweet
t	= Current period
t-1	= Previous period

If the value of XCi cinnamon ≥ 1 indicates an increasing competitive trend. Conversely, when the value of XCi cinnamon ≤ 1, it indicates a possible decrease in market share or decreasing competitiveness.

RESULTS AND DISCUSSION

A. Analysis of the Development of Indonesian Cinnamon Exports

Figure 1. Indonesian Cinnamon Export Volume 2000 - 2022

Source: Food And Agriculture Organization (FAO, 2024)

Figure 1 illustrates that Indonesian cinnamon exports have fluctuated in the last two decades. The pattern of increasing and decreasing development can be seen from 2000 - 2007, while from 2010 - 2011 the development of Indonesian cinnamon exports was stable with an export volume of 45,695 tons in 2011. The highest export volume was in 2017 with an export volume of 58,661 tons while the lowest export volume was in 2022 with an export volume of 26,167 tons of cinnamon. The average Indonesian cinnamon export from 2000 - 2022 was 39,627 tons with a growth rate of 1.27%. The cinnamon trend line equation is Xe = 372.16x + 36884 with R2 = 0.07. The increase in exports occurred along with the increasing demand (imports) from other countries, the large imports can also be caused by the increasing consumption of cinnamon spices and the increasing development of industries in other countries that use cinnamon. For example, according to the Ministry of Trade (2014), exports of cinnamon from smallholder plantations from North Sumatra increased by 79.28% (data from August 2014). The causes include the increasing need for cinnamon in Brazil along with the increase in processed coffee production that requires cinnamon as one of the coffee mixtures in that country.

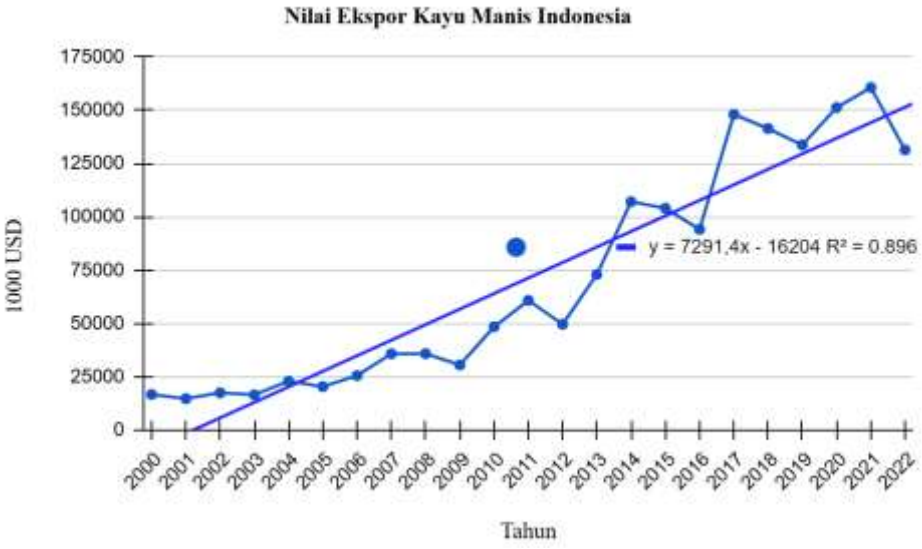

Figure 2. Value of Indonesian Cinnamon Exports 2000 - 2022

Source: Food And Agriculture Organization (FAO, 2024)

Based on Figure 2, it can be seen that Indonesian cinnamon exports have fluctuated. The highest export value was in 2021 with a value of US$ 160,694,000, while the lowest export value was in 2001 with a value of US$ 14,687,000. On the other hand, the highest growth in cinnamon export value was in 2010 with a growth of 58.72%. In 2011, the export value of Indonesian cinnamon still increased, but in that year the growth in the export value of Indonesian cinnamon was not as large as in 2010, there was a decrease of 33.14% from 2010 - 2011. The growth in the volume and value of Indonesian cinnamon exports from 2000 - 2022 can be seen in Table 1.

Table 1. Growth in Volume and Value of Indonesian Cinnamon Exports 2000 - 2022

Year	Average Export Volume (Tons)	Average Growth (%)	Average Export Value (1000 US$)	Average Growth (%)
2000 – 2003	30022	2.67	16304	0.36
2004 – 2007	42338	16.10	26113	23.34
2008 – 2011	43165	-1.66	43878	17.42
2012 – 2015	51563	5.95	83428	18.16
2016 – 2019	46739	-7.19	129352	9.46
2020 – 2022	31916	-11.43	147812	0.38
Average	41350	1.27	71293	12.00

Source: Food And Agriculture Organization (FAO, 2024)

B. Analysis of the Development of Indonesian Cinnamon Imports

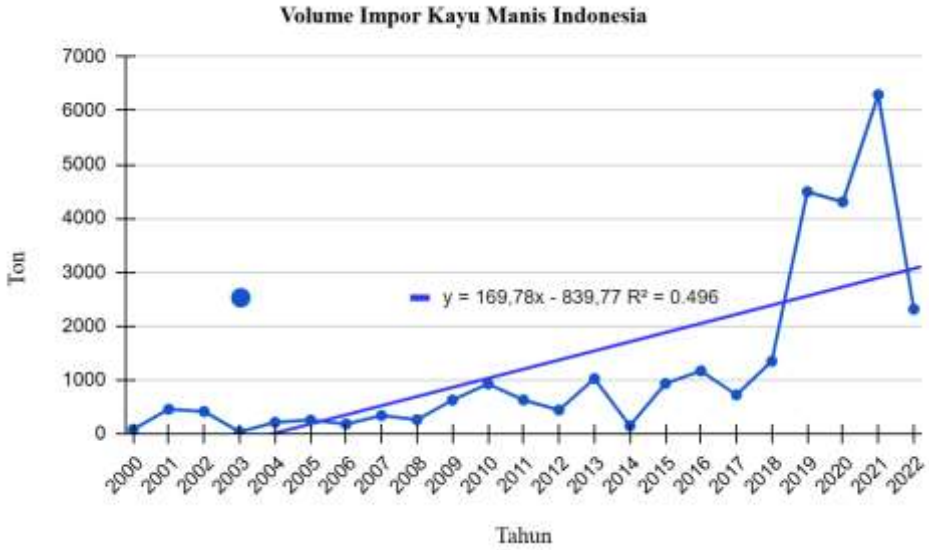

Figure 3. Volume of Indonesian Cinnamon Imports 2000 - 2022

Source: Food And Agriculture Organization (FAO, 2024)

Figure 3 shows that the volume of Indonesian cinnamon imports fluctuated with three development patterns, namely increasing, decreasing and stable. The highest increase in cinnamon import volume from 2000 to 2022 occurred in 2021 at 6,296 tons. If we look at Figure 3 above, the development of Indonesian cinnamon imports from 2000 - 2022 tends to increase. This can be seen based on the lowest import volume of 30 tons in 2003 and the highest cinnamon import volume of 6,296 tons in 2021. The average volume of cinnamon imports over a period of 20 years was 1197.61 tons with an average import growth of 0.89%. This increase in imports was due to meeting the need for cinnamon in the form of powder, cinnamon oil and oleoresin.

Figure 4. Value of Indonesian Cinnamon Imports 2000 – 2022
Source: Food And Agriculture Organization (FAO, 2024)

Figure 4 shows that there are 3 patterns of cinnamon development, namely increasing, decreasing and stable patterns. In 2000 - 2008 it was quite fluctuating, then in 2018 to 2021 there was a fairly high increase from the original in 2018 of 3,472,000 US$ to 21,188,000 US$. The following year, 2022, experienced a fairly drastic decline, namely to 8,574,000 US$. The growth in the volume and value of Indonesian cinnamon imports in 2000 - 2022 can be seen in Table 2.

Table 2. Growth in Volume and Value of Indonesian Cinnamon Imports 2000 - 2022

Year	Average Import Volume (Tons)	Average Growth (%)	Average Import Value (1000 US$)	Average Growth (%)
2000 – 2003	242.25	96.26	537.50	4.43
2004 – 2007	243.75	169.80	746.50	201.91
2008 – 2011	607.50	33.56	1894.25	33.79
2012 – 2015	634.00	138.65	2266.75	92.40
2016 – 2019	438.00	-30.03	1845.00	-15.83
2020 – 2022	1022.00	133.33	3021.00	63.74
Average	1197.61	0.89	3879.65	68.86

Source: Food And Agriculture Organization (FAO, 2024)

Table 2 shows that import volume experienced a significant decline in 2003 and 2014, with a decline of 92.68% and 85.71%, respectively. In addition, in 2004 there was a significant increase in import volume of 600%, which was in line with the increase in the amount of cinnamon imported in 2003 from 30 tons to 260 tons. Meanwhile, in terms of import value, the highest increase occurred in 2004, which was 588.14% and the highest decline in import value was in 2003 with a decline of 92.25%.

C. Comparison of Competitiveness with Competitor Countries

1. Revealed Comparative Trade Advantage (RCTA) Analysis Results

Revealed Comparative Trade Advantage(RCTA) is a method used to measure the level of competitiveness in terms of comparative advantage. (Tambunan, 2004). The RCTA value of cinnamon will show the strength of its competitiveness. There are several factors that influence a country's comparative advantage. Pearson and Gotsch (2004) in Siregar (2010) divide the factors that influence comparative advantage into five parts, namely changes in natural resources, changes in biological factors, changes in input prices, changes in technology, cheaper and more efficient transportation costs. Analysis of the RCTA value can be seen in Table 3.

Table 3. RCTA Value of Cinnamon in the International Market 2000 - 2022

Average RCTA Value of Cinnamon					
Year	Indonesia	Vietnamese	China	Sri Lanka	Saudi Arabia
2000 – 2003	18,391	22,140	2,263	906,216	-2,255
2004 – 2007	24,046	21,736	1,777	1016,265	-1,922
2008 – 2011	27,187	22,623	2,161	896,439	-2,321
2012 – 2015	19,616	19,158	1,607	1179,395	-2,046
2016 – 2019	22,345	24,631	1,782	1031,161	-1,334
2020 – 2022	27,034	20,530	1,558	958,064	-1,985
Average	21,815	18,663	1,507	867,535	-1,925

Source: Food And Agriculture Organization, 2024 (Processed)

Table 3 shows that Sri Lanka has the highest RCTA value (867.535), followed by Indonesia (21.815), Vietnam (18.663), and China (1.507). Sri Lanka is still the leader in the global cinnamon trade because the country dominates the premium spice market with certified products and has a high reputation in the pharmaceutical and food industries. Indonesia with its RCTA value ranks second in global competitiveness with the main advantages of the vast cinnamon plantation area and large export volume, although it still faces obstacles in terms of processing and product innovation. Vietnam and China, on the other hand, have begun to improve their competitiveness by investing in processing technology and aggressive marketing strategies. Vietnam, for example, has succeeded in increasing its cinnamon exports in the form of powder and essential oil, which have higher added value compared to exports in raw form.

Sri Lanka is the country with the greatest comparative advantage influenced by several factors including natural resources, biological factors, input prices, technology and transportation. In terms of resources, Sri Lanka is the largest producer of cinnamon with the type Cinnamomum zeylanicum (Ceylon cinnamon). The areas producing Ceylon cinnamon in Sri Lanka are Kandy. Matale, Belihull Oya, Haputale, Horton and Singaraja forest. The second position is occupied by Indonesia with an RCTA value of 21.81. The highest RCTA value was obtained in 2014 with a value of 31.56. This is supported by the fact that in that year Indonesia experienced the best export performance in the span of 23 years with an export value (RXA) of 44.62. Meanwhile, in the same year, its import penetration value (RMP) was also relatively low at only 0.52. The cinnamon developed in Indonesia is the type Cinnamomum burmanii (Cassiavera). One of the reasons for the high RCTA value of Indonesian cinnamon is from export activities. Indonesian cinnamon export activities have increased, which is also influenced by the large production of Indonesian cinnamon. Indonesian cinnamon exports average 40%-60% of its production, the rest is for domestic consumption. Indonesian cinnamon production per year 2002 - 2009 experienced an average increase of 14.33%.

The country in third place is Vietnam with an average RCTA score of 18.663. Vietnam's RCTA score has fluctuated but tends to decline with an average decline of 0.04%. The highest RCTA score was in 2000 with an RCTA score of 25.88. China and Saudi Arabia are the countries in fourth and fifth place in terms of RCTA scores. China's RCTA score for the period 2000 - 2022 was 1.50. Meanwhile, Saudi Arabia has an RCTA score below zero (negative) with an average RCTA score of -1.92. This value depends on the development of the export value (RXA) and import penetration (RMP) of each country. If seen in Table 3. the highest RCTA score for China was in 2001 with a score of 2.72 and the lowest RCTA score was in 2017 with a score of 0.88. Meanwhile, for Saudi Arabia, it can be seen that from 2000 to 2022 it has a negative RCTA value. This is because Saudi Arabia has a cinnamon import performance that is even greater when compared to its export performance both in terms of volume and value.

The order of the position of the acquisition of the RCTA value of cinnamon from the highest to the lowest is Sri Lanka, Indonesia, Vietnam, China and Saudi Arabia. The results of the analysis of the RCTA of cinnamon for each comparative country (Sri Lanka, Vietnam, Indonesia, China and Saudi Arabia) can be seen in Table 3. Based on the average RCTA value obtained by each country, it can be concluded that Sri Lanka, Vietnam, Indonesia and China are countries that have comparative competitiveness in the cinnamon trade sector, although the amounts produced by these four countries are different, China's competitiveness is relatively low with an RCTA value of only 1.50. Meanwhile, Saudi Arabia can be said to have no competitiveness (disadvantage) in the cinnamon trade because the RCTA value is negative (-1.92).

In comparison with research by Rochdiani and Wulandari (2023), a similar opinion was found that Indonesia has large cinnamon production potential, but this potential has not been optimally translated into competitive advantages due to constraints in post-harvest technological innovation, low product added value, and a fragmented production system.

2. Export Competitiveness Index (XCi) Analysis Results

Export Competitiveness Index (XCi) analysis is used to measure the level of competitiveness of a product in a country based on its competitive advantage. Rochdiani and Wulandari (2023) stated that the XCi method shows the ratio of a country's market share in the world market for a particular commodity in a certain period (t) with the ratio of a country's export market share in the world market for the same commodity in the previous period (t-1). The XCi value is able to indicate whether a country's cinnamon has the ability to compete with other countries that are its competitors. If the XCi value of a commodity is greater than one, it means that the commodity is facing an increasing competitiveness trend, conversely if the XCi value is less than one, then the commodity is facing the possibility of a decrease in market share or weakening competitiveness. The XCi value of cinnamon in the international market can be seen in Table 4.

Table 4. XCi Value of Cinnamon in the International Market 2000 - 2022

	XCi Value of Cinnamon				
Year	Indonesia	Vietnamese	China	Sri Lanka	Saudi Arabia
2000 – 2003	3,860	4,249	3,998	4,018	13,353
2004 – 2007	4,298	4,420	4,043	3,852	7,186
2008 – 2011	4,062	4,266	4,150	4,115	1,464
2012 – 2015	4,195	4,789	4,069	3,733	3,532
2016 – 2019	3,836	4,500	4,028	3,868	11,573
2020 – 2022	2,703	2,988	3,273	2,981	2,664
Average	1,008	1,096	1,024	0.981	1,729

Source: Food And Agriculture Organization, 2024 (Processed)

Table 4 shows that the average XCi of each country over a period of 23 years, the five countries are classified as having increasingly strong competitive cinnamon competitiveness in the international market. This can be seen in the average XCi value obtained by Indonesia, Vietnam, China, Sri Lanka and Saudi Arabia. The highest average value is Saudi Arabia with an XCi value of 1.729; Vietnam with an average XCi value of 1.096; the third position is occupied by China with 1.024 as the average XCi value obtained. The fourth and fifth positions are Indonesia with an average XCi value of 1.008 and Sri Lanka with an average XCi value of 0.981.

The average value of Saudi Arabia's XCi is 1.729, placing Saudi Arabia in first place, this is influenced by the value of Saudi Arabia's cinnamon exports to world cinnamon in the current period compared to the previous period. As happened in 2001, the value of Saudi Arabia's cinnamon exports increased drastically from the previous year (2000) of only 9000 USD, increasing drastically to 103,000 USD, which has grown by 1,044%. This also happened in 2018, where in 2017 Saudi Arabia's cinnamon export value was 30,000 USD, increasing to 345,000 USD. In the early 2000s, Saudi Arabia emerged as one of the main trade "hubs" for spices in the Middle East. Although this country is not a natural producer of cinnamon, several strategic factors make Saudi Arabia export a lot of cinnamon, the first being its role as a distribution and re-export center.

Vietnam's average XCi score of 1.096 places Vietnam in second place. Vietnam is a country that produces C.loureiroi cinnamon. In addition to producing cinnamon bark, Vietnam also produces cinnamon oil. Cinnamon bark is dried and classified into two forms, namely medicines and food products. Chips, branches, bark or leaves of cinnamon can be distilled to produce essential oils. With the development of existing technology, cinnamon oil production can be increased by 8% - 10%. Cinnamon production in Vietnam is used for domestic consumption and export. Some of Vietnam's cinnamon export destinations are Hong Kong, Japan, Singapore, France, Canada and the United States. Realizing the great potential of the world cinnamon market and the increasing trend of Vietnamese cinnamon exports will make Vietnam one of the largest cinnamon exporters in the world. Based on this, Vietnam has conducted several studies for the development of cinnamon in its country, including: (a) conducting research on the use of other parts of the cinnamon tree to increase added value and reduce market competition, (b) strengthening the processing of cinnamon products such as essential oils to add more value to export products, (c) selecting good quality cinnamon seeds with high essential oil content, and (d) a suitable growing environment because it will affect the quality of the cinnamon and essential oil produced (Morris and Van Bay, 2002).

The next country that occupies the third position in cinnamon exports in the international market is China with an average XCi value of 1.024. China's XCi value obtained during the analysis period tends to fluctuate and indicates that during the observation period, China has quite high competitiveness with its competitors. The type of cinnamon found in China is often referred to as Chinese cinnamon. This cinnamon has a distinctive taste such as sweet, bitter, and spicy and its taste is considered stronger than the Ceylon cinnamon type. China's highest XCi value in the period 2000 to 2022 was 1.366 which was obtained in 2002, while the smallest XCi value was obtained in 2008 with an XCi value of 0.789.

After China, Indonesia is in fourth place with an average XCi value of 1.008 in a 23-year period from 2000 to 2022. The highest XCi value was obtained in 2010 with a value of 1.397 and the previous year, 2009, was the year with the lowest XCi value during the 2000 to 2022 period, which was 0.821. This increase in XCi is also marked by an increase in the export volume and export value of Indonesian cinnamon which increased by 17% for export volume and 37% for export value or 17,912US$. Although relatively low compared to other exporting countries, Indonesia is also developing a cinnamon industry located in several areas such as Solok, South Solok, Tanah Datar, Padang Pariaman, Agam, and Pasaman districts with the hope that the development of this industry can increase the added value and competitiveness of Indonesian cinnamon in the international market. This finding is reinforced by Rochdiani & Wulandari (2023) who highlighted Vietnam's advantages in product certification and differentiation. Meanwhile, Rambe & Malau (2023) reported a negative CMS value for Indonesia, indicating a decline in relative competitiveness against competitors due to price fluctuations and inconsistent export policies.

The fifth position of cinnamon exporting countries is Sri Lanka with an average XCi value during the period 2000 - 2022. The highest XCi value was obtained in 2008 at 1.203 while the smallest value was obtained in 2014 at 0.777. Although the average XCi value from Sri Lanka is low, the export value of Sri Lankan cinnamon is higher than Indonesia. This is due to Sri Lanka's specialization in the production and export of Cinnamum Zeylanicum

Blumee cinnamon which is included in true cinnamon with a high export price. In 2022, the export value of Sri Lankan cinnamon was known to reach 247,368 US$ while in the same year, Indonesia obtained a cinnamon export value of 160,694 US$.

CONCLUSION

Indonesian cinnamon exports and imports were quite fluctuating during the period from 2000 to 2022. The average annual export growth in terms of volume was 1.27% and in terms of value was 12.00%. Meanwhile, the development of Indonesian cinnamon import activities was greater than its export activities. The average annual growth of cinnamon imports in terms of volume was 0.89% and in terms of import value was 68.86%.

Based on the RCTA calculation, it can be seen that the order of the position of the RCTA value of cinnamon from highest to lowest is Sri Lanka (867.535), Indonesia (21.815), Vietnam (18.663), China (1.507) and Saudi Arabia (-1.925). This can be seen from the average XCi value of Indonesia, Vietnam, China, Sri Lanka, and Saudi Arabia which is more than one. The highest average value is held by Saudi Arabia with an XCi value of 1.729, followed by Vietnam in second place, which is 1.096, China and Indonesia in third and fourth positions with 1.024 and 1.008. The last position is occupied by Sri Lanka with 0.981.

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