

## **The Analysis of Thailand's Export Performance of Mangosteen in China-ASEAN FTA**

Nattaporn Chuaychom<sup>1</sup> and Zhao Jianmin<sup>2</sup>

*The School of Economics, Shanghai University, Shanghai 200444, China*

*Corresponding Author: Nattaporn Chuaychom*

---

**ABSTRACT:** *This article was mainly aimed to analyze the circumstance of Thailand's export to China in particular of mangosteen according to zero-tariff policy in China-ASEAN Free Trade Area (CAFTA) established in 2010 which rapidly develop Thailand's economy during these recent years. The use time-series data of fruit-trade between China and ASEAN countries from 2007 to 2016 applying Revealed Comparative Advantage Index (RCA), the International Market Shares (MS), the Export Contribution Rate (CI), and the Export Advantage Development Index (DT) to conduct the comparative competitiveness analysis among Thailand, Myanmar, Indonesia, and Malaysia in China market. Although it resulted that Thailand has the relative competitiveness and won the comparative advantage in all aspects, there is the obstacle causing difficulty in Thailand's export interrupted by the domestic market issues, international trade regulations, and unstable political situations that may need the aggressive intention to improve and promote Thai mangosteen market by the Thai government.*

**KEYWORDS:** *CAFTA, Zero-Tariff, Thailand, China, Sino-Thai Trade, Mangosteen.*

---

Date of Submission: 24-01-2019

Date of acceptance: 08-02-2019

---

### **I. INTRODUCTION**

The international trade between China and Thailand has been conducted under the trade agreement between China and the Association of Southeast Asian Nations (ASEAN) free trade area (CAFTA), one of the third largest free trade zone in the world composed by entirely of developing countries in Southeast Asia (Yang, Du and Leng, 2010) chasing North America (NAFTA) and the European Unions (EU) by the scale of the population and economy with two classifications of products including (1) the normal-products which are ultimately achieve zero-tariff and (2) the sensitive products which have flexibility in the time of tariff elimination (Xu, 2010). However, over 90% of products traded under this FTA has already implemented zero-tariff and tend to be close to 100% in the near future but it should be noted that some of the sensitive products are still strictly listed according to the specific conditions in some member countries. Nonetheless, regarding to the East and Southeast Asia economic integration, after the completion of CAFTA, this economic zone has provided the privilege of global market opportunities for goods, services, and investment together with more frequently exchange in the political, economic, and cultures, which will not only help the regional political security environment, but also benefit the economic and trade development in East Asia (Liang, 2003). Furthermore, there is a reliable guarantee between the prosperity and stability of the two sides which greatly strengthens the status of China and ASEAN in the world economy, and will bring peace and stability to Asia and the world as well.

Thailand is one of the biggest of ASEAN tropical fruit exporters to China with the potential to maintain the growth of export volume and market shares. According to the relevant statistics of the Food and Agriculture Organization of the United Nations (FAO), the largest fruit produced in Thailand are longan, which accounts for about 40% of the Thai fruit export and about 30% of the output; followed by durian, mangosteen, and rambutan. From the perspective of export weight, Thai longan, durian, and mangosteen account for the large proportion of total fruit exports in respectively. The essential fruits such as durian, longan, mangosteen, pineapple, and rambutan are very popular among both local and foreign consumers due to the unique palatable taste and the high quality that has significantly brought billions of dollars per year accounting Thailand's gross domestic product. Since the economic revolution has been an engine to drive Chinese economy to be big enough and became one of the potentially influent market on both consumer and supplier sides in the global market, an increasing in Chinese population income in the recent years has brought the fresh tropical fruit consumption

---

<sup>1</sup>Nattaporn Chuaychom, a Master's Degree Student in International Trade at the School of Economics Shanghai University email: n.chuaychom@hotmail.co.th

<sup>2</sup> Dr. Zhao Jianmin, Professor of the International Trade Department, the School of Economics, Shanghai University, in order of research advisory.

demand in China approximately rising up for 2.12% per year with the average amount in kilogram consumed by Chinese people which rose up from 28 kg. in one year per person in 2011 to 48.1 kg. in 2016. Although China is a big country with many different climates, there is a limitation of the commercial plant to grow tropical fruit especially the humid monsoon area so that those fruits are still on demand from Thailand and other ASEAN countries where the weather condition is definitely more suitable to plant and harvest in the large amount of fresh fruit to supply the markets. Due to this significant skyrocket increase in demand of fruit in China while the planting area of fruit production is stay remained, it leads the change in domestic fruit price structure in the origin fresh-fruit supplier countries by the expectation of increasing the higher price which is related to the demand for export to the enlarging potential global market.

Thai mangosteen in the Harmonized system was classified as the sensitive product under the agreement of customs tariff between Thailand and China which has already declined from 30% to 24%. However, under the memorandum between these two countries, the tariff can be reached zero aligning a special term of the trade agreement. According to the Department of Trade Negotiation of Thailand's 2017 report,<sup>3</sup> China is the third biggest market destination of Thai fresh fruits and processed fruits, respectively followed ASEAN and the United States with 740 million USD in the overall fruit products trade value, and 60 million USD which is 8.98% comparatively increased from the past year for mangosteen. Regarding the situation of the bilateral trade agreement of mangosteen between China and Thailand under CAFTA in all over above statement, therefore, this article was keened to analyze in comparative of the export competitiveness of an important fruit trade among exporting countries in ASEAN particularly with Myanmar, Indonesia, and Malaysia where mangosteen were also exported to China, as well as to do further analyze on the problems and trade difficulties that Thailand is facing in exporting mangosteen in order to enhance Thailand's competition in the Chinese market with the issue of strengths, suggestions, and countermeasures which are very meaningful information for Thailand to achieve the challenges of the fruit trade in China market.

## **II. LITERATURE REVIEWS**

The research area of this study is China and the Association of Southeast Asian Nations (ASEAN + China) that is considered as the regional economic integration which refers to the establishment of a unified internal and external economic policy, fiscal and financial policy under the jurisdiction of a government-constructed and super-national organization, as well as trade policy and regulations, to eliminate barriers between the member states in the region that hinder the development of economic and trade to achieve mutual benefit. This coordinated development collaboration will help to create the optimal allocation of resources in the region, and finally to form a high politically coordinated and super-national essence (Shi and Yang, 2005 in Mu and Liu, 2010). Furthermore, the analysis is based on the concept Adam Smith's the absolute advantage theory (1776) and David Ricardo's the theory of comparative advantage (1817), which are the essential basis of analyzing in the most compelling reason to support the international trade with an idea of the benefit of zero-tariff or free trade. As the comparative advantage of a country is determined by its factor abundance, therefore, countries should produce goods that can make more intensive use of their abundant and cheaper production factors in exchange for those goods that need to use their scarce instead of expensive production factors intensively (Liu, 2006). The key factor to determine the international competitiveness among industries is institutional factors, but its shortcoming is that those factors may ignore technology that has an impact on the international competitiveness of the industry (Yang, 2003). Together with Heckscher-Ohlin theorem which was applied in Zhang and Huang (2008) and states that different commodities need different proportions of production factors, while the production factors owned by different countries are relatively different.

Thailand's fruit exports to China have had an advantage since before the establishment of the China-ASEAN Free Trade Area (CAFTA) and even more enhanced the competitiveness after completing the establishment of CAFTA (Chompoonak, 2007) confirmed by Zhou (2008) who used SWOT analysis with Thai agricultural products exported to China and to find greater advantages than disadvantages. The impact of zero-tariff agricultural products on Sino-Thai agricultural trade was studied by Cao Lin (2013) which mainly analyzed the competitiveness and complementarity of agricultural trade between China and Thailand and proposing how to explore the cooperation potential of agricultural trade between China and Thailand and revealed the better opportunities addressed on challenges of zero-tariff agreements on agricultural products. By the way, the RCA index was used to measure the competitiveness as Theerach (2011) had studied the potential of Thailand's export of durian into China by comparing the durians from Vietnam and Malaysia, and built the RCA index to show that Thailand durian had always had an advantage in the Chinese market through the calculated RCA for Thailand which was greater than one beating Vietnam and Malaysia, which calculated RCA values were both less than one so that to conclude that Thai durian had a comparative advantage over Vietnam and Malaysia. However, Ye (2014) provided that unfavorable factors affecting the export of fresh tropical fruits

---

<sup>3</sup> Under the Ministry of Commerce. Online database available at: <http://tradereport.moc.go.th/TradeThai.aspx>

from Thailand include too expensive price associated with high production costs to suggest Thailand should carefully pay attention to the competitiveness and competitive advantages, market demand, and market status in western China with the reason explained that only when the products are in reasonably priced with the high quality which will be expanded in the western China market. Moreover, there are numerous studies that have suggestions of factors that can impose international fruit trade, Luo (2005) was firmly suggest to improve infrastructure especially logistics system to fasten the transportation time as well as several aspects such as socio-economic aspects, technical process, and government regulations should be concerned in order to enhance the competitiveness of fruit exports (ESCAP, 2007)<sup>4</sup>. Since fruit products are very perishable, proper packaging is required to maintain the quality of the fruit, and the company will gain more profit suggested by Blanco et al., (2004) highlighted that packaging equipment was increasingly playing important role in the fruit industry in the highly competitive international market conditions. Likewise, fruit production technology directly affected fruit quality to gain better yields and benefits as believed by Deng and Yang (2015) that modern information intelligence, and mechanization have become an important part of fruit production and also an important direction to develop the fruit industry. Nonetheless, there are other important factors apart from physical development to enhance the competitiveness of Thai fruit exports are brand marketing strategies, new product development, and even trademark displaying to show the real Thai products awareness which is admittedly acceptable for Chinese market especially in Guangzhou and Shanghai Pongpanich (2008). Lastly, the influence of online marketing which is a brand-new platform of doing business providing conveniences to the modern society which Zhou (2013) showed the obvious deficiencies and powerful advantages of online marketing to open up a new perspective to strengthen the international competitiveness of Chinese agricultural products.

### III. METHODOLOGY

The annual time-series data from 2007-2016 with 10 observations related to international trade of mangosteen were collected from the United Nations Trade Database (UN COMTRADE), the Ministry of Commerce, and the Agricultural Promotion Office of Thailand, to calculate (1) Revealed Comparative Advantage Index (RCA), (2) International Market Shares (MS), (3) Export Contribution Rate Index (CI), and (4) Export Advantage Development Index (DT), in order to analyze the ability of the competitiveness and the comparative advantage of Thailand together with the other rival mangosteen exporters including Myanmar, Indonesia, and Malaysia in China market as well as to analyze trade development status for mangosteen among those countries. Once the calculation results were received, the next step is to issue the major problems in the production process and export procedures of mangosteen in Thailand for the propose of corresponding policy recommendations based on the analysis basis. The referent procedures of the four indices will be demonstrated as the followings:

#### (1) Revealed Comparative Advantage: RCA

The RCA was firstly proposed by American economist Bela Balassa in 1965 which is also known as the Export Performance Index to calculate Thailand's exports mangosteen to China. The index refers to the ratio of the export value of a certain type of good in a country to the total export value and the proportion of the world's exports of such good to the world's total exports. The interpretation of  $RCA > 1$  is that the country has a dominant comparative advantage, in the other hand, when  $RCA < 1$ , it indicates that the country's commodities have no dominant comparative advantage. And the RCA can be calculated with the formula proposed by Vollrath (1991) as:

$$RCA_{ij} = \frac{(X_{ij} / X_{it})}{(X_{wj} / X_{wt})} \quad (1)$$

Where  $RCA_{ij}$  is the revealed comparative advantage of country  $i$  in the production of commodity  $j$  (mangosteen), while  $X_{ij}$  and  $X_{it}$  represent country  $i$ 's export value of mangosteen and its total exports with other commodities,  $X_{wj}$  and  $X_{wt}$  represent the exports of mangosteen and the total exports of other commodities for the rest of the world.

---

<sup>4</sup>United Nations Economic and Social Commission for Asia and the Pacific has conducted research on fruit products in Asian countries in the topic of "Enhancing the Competitiveness of Asian Fruit Exports".

## (2) International Market Shares: MS

The international market share or the global export market share is a key indicator to measure the competitiveness of a country in the proportion by percentage of the exports of a certain good in the global market, as changes in global market shares are a measurable outcome of underlying changes in a country's global competitiveness. The international market shares of mangosteen in China market was calculated with the following formula:

$$MS_{ij} = \frac{A_{ij}}{A_{wj}} \times 100\% \quad (2)$$

Where  $MS_{ij}$  is the international market share of country  $i$  in the meaning to export product  $j$  (mangosteen) to China,  $A_{ij}$  and  $A_{wj}$  represent the total export volume of mangosteen from country  $i$  to China, and the total volume of mangosteen exported to China from the rest of the world.

## (3) Export Contribution Rate: CI

The export contribution rate refers to the proportion ratio of the export value of a certain of product category over the total export value of the country which reflects the contribution of the export value on the product to the total export value. The formula for the export contribution rate of mangosteen in China market is demonstrated as follows:

$$C_i = \frac{A_{ij}}{A_{it}} \quad (3)$$

Where  $C_i$  is the export contribution rate of country  $i$  associated with its export value of product category  $j$  (mangosteen) to China ( $A_{ij}$ ) over the total value of exports ( $A_{it}$ ). The export contribution rate should be close to one ( $C_i \approx 1$ ) to reflect the strong competitiveness in contribution of such product to the exports of the country.

## (4) Export Advantage Development Index: DT

The Export Advantage Development Index refers to the difference between the export growth rate of a certain type of products and the total export growth rate, which can represent the changes in the advantages of the country's exports of products. The calculation for index regarding exporting of mangosteen for a country in this study can be calculated as follows:

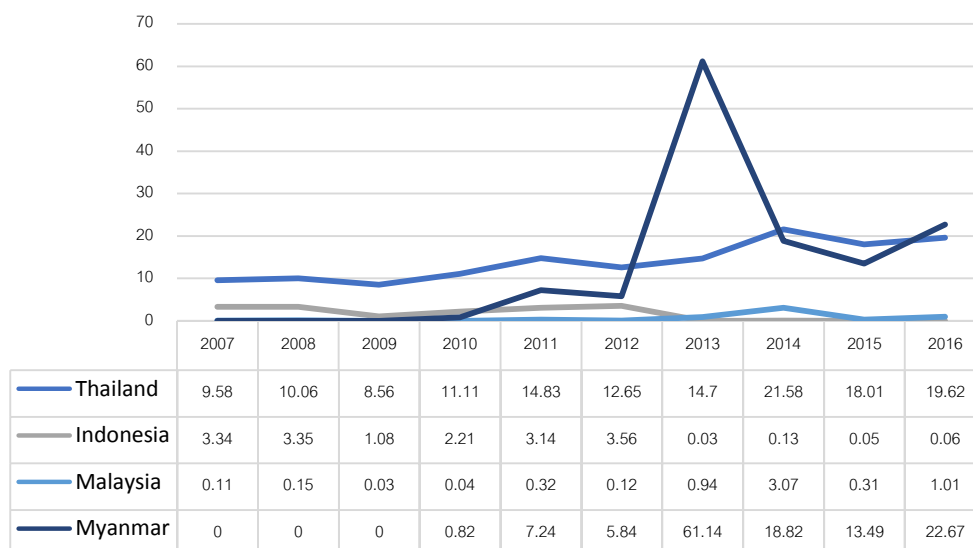
$$D_t = (g_i - g_t) \times 100\% \quad (4)$$

Where  $D_t$  is the Export Advantage Development Index for a country  $i$  in contribution to the reference product (mangosteen),  $g_i$  and  $g_t$  are the growth rate of mangosteen exported from the country to China, and the growth rate of total exports value to China in respectively.

## IV. RESULTS

The characteristic of the dominant comparative advantage is dynamic with the ability to evaluate the level of comparative advantage of a country in exporting a specific good. Thailand has  $RCA > 1$  against Malaysia which  $RCA$  is less than one ( $RCA < 1$ ) over the research time. The stability of the comparative advantage in exporting mangosteen to China seems to be stable for Thailand, Indonesia, and Malaysia where Thailand has been always won the comparative advantage among those countries for the past ten years (2007 – 2016) except during the end of 2012 until mid-2014 when Myanmar's revealed comparative advantage index ( $RCA$ ) was dramatically increased and sharply drop but still be over all the selected countries during that time (see Figure1). Even if Thailand has had the high comparative advantage so far with about 104.8% of the  $RCA$  growth at the end of 2016 compared to the base year 2007, however, Myanmar has shown the strong influence  $RCA$  of mangosteen export and beat over Thailand again by the  $RCA$  value of 22.67. This can be realized that mangosteen has become a higher advantage to Myanmar in order to export in the past half-decade.

**Figure1 China-ASEAN Mangosteen Exporters RCA.**

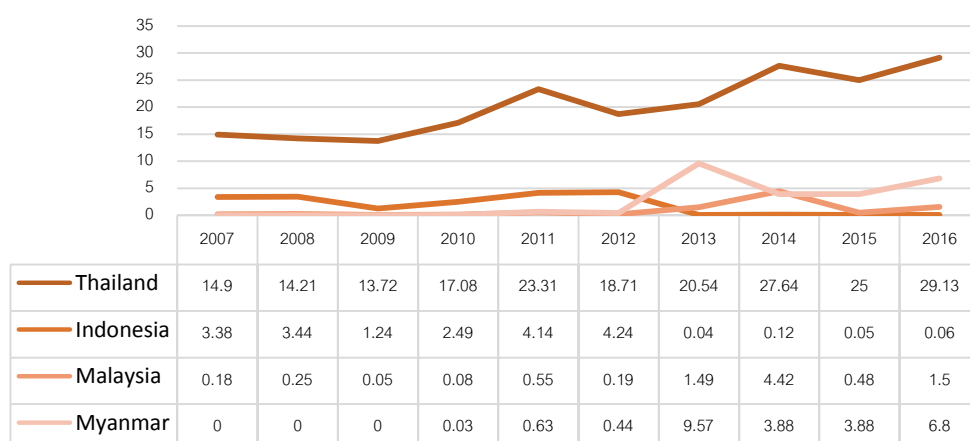


**Source:** From the calculation according to the UN COMTRADE database.

**Remark:** Data series of zero (0) in the table of Myanmar RCA represents of non-available during 2007 to 2009.

Consider the international market shares (MS) aspect, the biggest market shares of mangosteen in the Chinese market has obviously belonged to Thailand with over 15% as shown in Figure2. The result reveals the market shares of mangosteen for Thailand has been increasing through the period of time together with Myanmar market shares which also increased since 2012. Although Indonesia also had the market shares around 3% – 4% during 2007 – 2012, it significantly dropped to the very low since 2013 while Malaysia barely has statistically market shares of mangosteen in the Chinese market and remain on the bottom place.

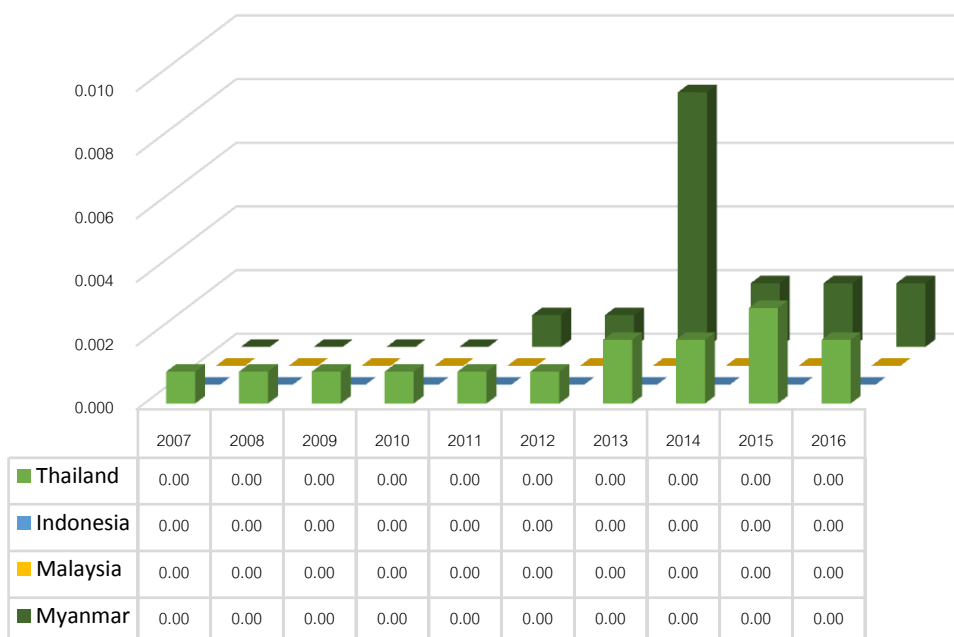
**Figure2 The International Market Share of Mangosteen in Chinese Market.**



**Source:** From the calculation according to the UN COMTRADE database.

**Remark:** Data series of zero (0) in the table of Myanmar RCA represents of non-available during 2007 to 2009.

**Figure3 The Export Contribution Rate Index of Mangosteen for Exporters.**



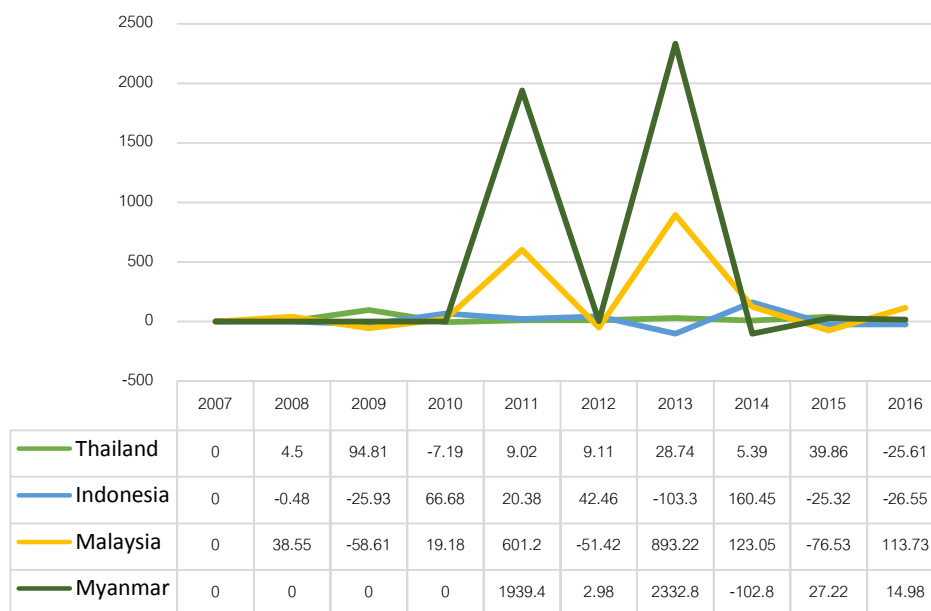
**Source:** From the calculation according to the UN COMTRADE database.

**Remark:** Data series of zero (0) due to data limitation and lack of export contribution for mangosteen in some countries.

The mangosteen seems to scarcely have contribution to the exports for Indonesia and Malaysia as though the digits resulted in the table of the Export Contribution Rate Index from Figure 3. However, it still occurred for Thailand with the very small rates between 0.001 to 0.003 as well as Myanmar. Nonetheless, particularly in 2013 when the contribution rate index of exporting mangosteen for Myanmar was in the peak rate at 0.008 among ASEAN exporters consistently with its RCA and market shares which were high by that time. This may imply that mangosteen is not actually the major source of total export income for these countries but it is a major product in fruit categories of which to export to China.

As per the Export Advantage Development Index (DI) was associated with the growth rate of mangosteen exports and the growth rate of the total exports differentiation for the country, it can be viewed in the below Figure 4 that mangosteen export growth for Indonesia, Malaysia, and Myanmar has tended to be like boom-bust cycle as the characteristic of DI for the three countries were both positive and negative, seemingly switching which is different from Thailand where DI has slightly changed and remained stable in all over the time. Furthermore, regarding the fluctuation of the mangosteen exporting development in the Chinese market for Indonesia, Malaysia, and Myanmar, the magnitudes of the changes were obviously great especially in 2013 when the DI were over 120%. However, the development index for Myanmar has improved turning to the positive rate since 2015.

Figure4 The Export Advantage Development Index of Mangosteen.



Source: From the calculation according to the UN COMTRADE database.

Remark: The result started from 2008 for Thailand, Indonesia, and Malaysia due to the calculation as the growth using data in 2007 as the base year, and started from 2010 for Myanmar due to lack of information during 2007 to 2009.

## V. CONCLUSION

The analysis of Thailand's performance in the basis of mangosteen exporting to China which in the combination with the production of mangosteen in Thailand and the other trade competitors from ASEAN including Indonesia, Malaysia, and Myanmar, in Chinese market supplying through the calculation of RCA index, Market Share (MS), Contribution index (CI), and the Export advantage development index (DI), in order to analyze the competitiveness of mangosteen export for Thailand and other selected countries. The establishment of the China-ASEAN Free Trade Area has promoted the export of goods in Thailand. The signing of the trade agreements at the bilateral and multilateral level has provided the convenience for the export of mangosteen for Thailand. Meanwhile, through the analysis of the Chinese market, it was also found that China is currently the largest consumer of mangosteen in the world, and its domestic mangosteen supply is far from the satisfaction of its domestic consumption and open more opportunities for Thailand to export. Furthermore, Thailand obviously has a strong competitiveness in mangosteen exports in the Chinese market by the comparative analysis of the RCA, MS, CI, and DI beyond the other competitors from neighboring countries. However, it is worth noting that the RCA index of Mangosteen in the Chinese market has an increasing trend, and its export competitiveness is not far from Thailand, which will further intensify the competition of Thai mangosteen in the Chinese market. However, although Thailand has a major role of supplying mangosteen to the Chinese market even under the condition of CAFTA over the other competitors, the tariff for mangosteen is still temporary zero so that it is such a trade barrier to limit the exports of mangosteen for Thailand.

### Policy Recommendation

Thailand is a world-largest famous producer and exporter of tropical fruits, especially durian and mangosteen, and particularly in the Chinese market. Although Thai fruit has strong international competitiveness, at the meantime, there are internal problems and external threats that Thailand should pay more attention to its advantages making up for some possible shortcomings, and adopt more effective policy measures as follows;

(1) Continue to expand the original advantages by consolidating its own superior resources in trade exports and continue to dominate the tropical fruits which satisfy the Chinese market with in-depth research on their market structure.

(2) Maintain and product quality because of health and food security have been more concerned by the new Chinese society which is much wealthier than before. Thus, the potential demand for consumption of health products has continued to grow up, especially for high-end fruits with the high quality. As Thai products has been popularly admitted by Chinese people by the premium quality aspect, therefore, Thailand should continue to maintain the quality of fruit produced to gain recognition in the Chinese consumer market.

(3) Promote the agricultural science and technology development to improve fruit production efficiency and reduce fruit production costs in order to increase the value-added in the product, and also improve the payment and logistic system shorten the time-length on transportation stabilizing fruit freshness and quality.

(4) Improve sales channels, for example, participate in the Chinese mobile platforms to media the product information to the Chinese consumers with the variety of fruit products as well as organize the trade show to introduce Thai product in the global market and seeking for the new trade partners worldwide.

#### REFERENCES

- [1]. A.M. Blanco, G. Masini, N. Petracci, J.A. Bandoni. Operations management of a packaging plant in the fruit industry. *Journal of Food Engineering*, 2004, 70(3):299-307
- [2]. Cao Lin. Impact of Zero Tariffs on Agricultural Products Trade between China and Thailand, Nantong Secondary Professional School, Jiangsu Province, 2013
- [3]. Kanokrat Chompoonak. An analysis of export competitiveness of Thailand's major fruits to China before and after the establishment of free trade agreement. *Kasetsart University*, 2007: 48-56
- [4]. Liang Zhiming. Significance and Prospects of China-ASEAN Free Trade Area Peace and Development, 2003 (2).
- [5]. Lie Deng, Qiang Lyu, and Simon X. Yang. Intelligent Information Technologies in Fruit industry, *Intelligent Automation & Soft Computing*, 2015, 21(3): 265-267
- [6]. Luo Yuanyuan. Current Situation and Prospects of Sino-Thai Fruit and Vegetable Trade under the "Zero Tariff" Agreement, *Guangdong University of Foreign Studies*, 2005:37
- [7]. Pongpanich Phitya-Isarakul. Enhancing the Competitiveness of Thai Fruit Exports: an Empirical Study in China. *Chulalongkorn University*, 2008:3-15
- [8]. Theerach Littila. The export potential of durian to the people's republic of China. *Ramkhamhaeng University* 2011: 72-77
- [9]. Vollrath, T.L. (1991): A Theoretical Evaluation of Alternative Trade Intensity Measures of Revealed Comparative Advantage. *Weltwirtschaftliches Archiv*, 130, 265-279.
- [10]. Yang Peizhi, Du Tao, and Leng Luozhou. A Brief Discussion on the Effect of China-ASEAN Free Trade Area on China's Economy and Its Countermeasures, *Journal of Yunnan University of Finance and Economics: Social Science Edition*, 2010:1
- [11]. Ye Mingyu. Research on the Export Strategy of Fresh Tropical Fruits in Thailand, *Harbin Institute of Technology*, 2014:47
- [12]. Zhang Jijun. Huang Yuhua. Research on the International Competitiveness and Development Potential of Main Tropical Fruits in China[D]. School of Economics and Management, Hainan University, 2008
- [13]. Zhou Xiaoyu. Research on the International Competitiveness of Thai Agricultural Products, 2008 Master's Thesis Zhou Zhengping. Research on International Competitiveness of Agricultural Products Based on Network Marketing Perspective. *Exploration of Economic Issues*, 2013(3): 17-22

Nattaporn Chuaychom" The Analysis of Thailand's Export Performance of Mangosteen in China-ASEAN FTA" *International Journal of Business and Management Invention (IJBMI)*, vol. 08, no. 02, 2019, pp 31-38