



Mycotoxin Contamination in Food and Agricultural Products Database

by Biological Reference Laboratory Center (BRLC), National Institute of Reference Laboratories (NIRL), Department of Science Service (DSS)

Data from **The Study of Mycotoxin Contamination in Agricultural Products Project**, which is financially supported by the Fundamental Fund (2025-26) of the Thailand Science Research and Innovation (TSRI)

Aflatoxin

Sample name	Year	Sample type	Sample Source	Source Category	Aflatoxin Contamination (µg/kg)					Note
					Aflatoxin B1	Aflatoxin B2	Aflatoxin G1	Aflatoxin G2	Total Aflatoxin	
Corn / Maize	2025	Sweet corn 1	Chai Nat	Farm site	nd	nd	nd	nd	nd	LOD = 0.6
		Sweet corn 2	Bangkok	Sampling site	nd	nd	nd	nd	nd	
		Waxy corn	Bangkok	Sampling site	nd	nd	nd	nd	nd	
		Feed Maize 1 (full grain)	Bangkok	Sampling site	7.29	0.50	nd	nd	7.79	
		Feed Maize 2 (full grain)	Bangkok	Sampling site	1.69	nd	nd	nd	1.69	
		Feed Maize 3 (full grain)	Bangkok	Sampling site	nd	nd	nd	nd	nd	
		Feed Maize 4 (coarsely ground)	Bangkok	Sampling site	0.85	nd	nd	nd	0.85	

		Feed Maize 5 (coarsely ground)	Bangkok	Sampling site	nd	nd	nd	nd	nd	
		Feed Maize 6 (finely ground)	Bangkok	Sampling site	13.9	1.19	nd	nd	15.1	
		Feed Maize 7 (finely ground)	Bangkok	Sampling site	4.09	0.43	nd	nd	4.52	
		Feed Maize 8 (finely ground)	Bangkok	Sampling site	nd	nd	nd	nd	nd	
		Feed Maize 9 (finely ground)	Bangkok	Sampling site	nd	nd	nd	nd	nd	
		Feed Maize (seed)	Nakhon Ratchasima	Sampling site	nd	nd	nd	nd	nd	
		Sweet corn (seed)	Nakhon Ratchasima	Sampling site	nd	nd	nd	nd	nd	
		Waxy Corn (seed)	Nakhon Ratchasima	Sampling site	nd	nd	nd	nd	nd	
	2026	Feed Maize 10 (full grain)	Bangkok	Sampling site	nd	nd	nd	nd	nd	LOD = 0.6
		Feed Maize 11 (coarsely ground)	Bangkok	Sampling site	2.22	nd	1.03	nd	3.25	
		Feed Maize 12 (coarsely ground)	Bangkok	Sampling site	0.47	nd	nd	nd	0.47	
Corn Flour	2025	Corn Flour 1	Ayutthaya	Production site	nd	nd	nd	nd	nd	LOD = 0.6
		Corn Flour 2	Ayutthaya	Production site	nd	nd	nd	nd	nd	

		Corn Flour 3	Ayutthaya	Production site	nd	nd	nd	nd	nd	
		Corn Flour 4	Samut Prakan	Packaging site	nd	nd	nd	nd	nd	
		Corn Flour 5	Chachoengsao	Production site	nd	nd	nd	nd	nd	
		Corn Flour 6	Ayutthaya	Production site	nd	nd	nd	nd	nd	
		Corn Flour 7	Nakhon Pathom	Packaging site	nd	nd	nd	nd	nd	
		Corn Starch	Bangkok	Packaging site	nd	nd	nd	nd	nd	
Mixed cereal grains	2026	Mixed Grains 1 (coarsely ground corn based)	Bangkok	Production site	1.39	nd	nd	nd	1.39	LOD = 0.6
		Mixed Grains 2a (millet)	Bangkok	Production site	0.20	0.49	0.37	nd	1.06	
		Mixed Grains 2b (millet)	Bangkok	Production site	0.36	0.48	nd	nd	0.85	
		Mixed Grains 2c (millet)	Bangkok	Production site	1.65	0.79	nd	nd	2.44	
		Mixed Grains 2d (millet)	Bangkok	Production site	0.66	0.49	nd	nd	1.15	
		Mixed Grains 2e (millet)	Bangkok	Production site	1.08	0.57	nd	nd	1.65	

		Mixed Grains 3 (coarsely ground corn based)	Bangkok	Sampling site	0.53	nd	nd	nd	0.53	
Peanuts	2026	Peanuts 1	Phetchabun	Production site	nd	nd	nd	nd	nd	LOD = 0.6
		Peanuts 2	Nonthaburi	Packaging site	nd	nd	nd	nd	nd	
		Peanuts 3 (feed)	Bangkok	Sampling site	nd	nd	nd	nd	nd	
Chili	2026	Ground chili 1 (finely ground)	Chiang Mai	Packaging site	54.5	2.44	nd	nd	56.9	LOD = 0.6
Cooked rice	2026	Cooked rice 1 (Hom Mali var.)	Phayao	Production site	nd	nd	nd	nd	nd	LOD = 0.6
		Cooked rice 2 (Hom Mali var.)	Phayao	Production site	nd	nd	nd	nd	nd	
		Cooked rice 3 (Hom Mali var.)	Phayao	Production site	nd	nd	nd	nd	nd	
		Cooked rice 4 (Hom Mali var.)	Yasothon	Production site	nd	nd	nd	nd	nd	
		Cooked rice 5 (Hom Mali var.)	Sisaket	Production site	nd	nd	nd	nd	nd	
		Cooked rice 6 (Hom Mali var.)	Sisaket	Production site	nd	nd	nd	nd	nd	
		Cooked rice 7 (Hom Mali var.)	Surin	Production site	nd	nd	nd	nd	nd	

		Cooked rice 8 (Riceberry var.)	Kamphaeng Phet	Production site	nd	nd	nd	nd	nd	
		Cooked rice 9 (Riceberry var.)	Tak	Production site	nd	nd	nd	nd	nd	
		Cooked rice 10 (Riceberry var.)	Surin	Production site	nd	nd	nd	nd	nd	
		Cooked rice 11 (Hom Mali Nil var.)	Surin	Production site	nd	nd	nd	nd	nd	
		Cooked rice 12 (Thabthim Chumphae var.)	Kamphaeng Phet	Production site	nd	nd	nd	nd	nd	
		Cooked rice 13 (Thabthim Chumphae var.)	Kamphaeng Phet	Production site	nd	nd	nd	nd	nd	
		Cooked rice 14 (Thabthim Chumphae var.)	Khon Kaen	Production site	nd	nd	nd	nd	nd	
		Cooked rice 15 (Komen Surin var.)	Surin	Production site	nd	nd	nd	nd	nd	
		Cooked rice 16 (Sang Yod Phatthalung var.)	Phatthalung	Production site	nd	nd	nd	nd	nd	
		Cooked rice 17 (Sang Yod Phatthalung var.)	Phatthalung	Production site	nd	nd	nd	nd	nd	

Note : nd = not detected

updated : 120826

Fumonisin

Sample name	Year	Sample type	Sample Source	Source Category	Fumonisin Contamination (µg/kg)				Note
					Fumonisin B1	Fumonisin B2	Fumonisin B3	Total Fumonisin (B1+B2)	
Corn / Maize	2025	Sweet corn 1	Chai Nat	Farm site	nd	nd	nd	nd	LOD = 15.0
		Sweet corn 2	Bangkok	Sampling site	85.3	nd	106.0	85.3	
		Waxy corn	Bangkok	Sampling site	173.8	nd	95.7	173.8	
		Feed Maize 1 (full grain)	Bangkok	Sampling site	498.9	207.6	114.3	706.6	
		Feed Maize 2 (full grain)	Bangkok	Sampling site	129.7	nd	nd	129.7	
		Feed Maize 3 (full grain)	Bangkok	Sampling site	222.7	nd	nd	222.7	
		Feed Maize 4 (coarsely ground)	Bangkok	Sampling site	324.0	152.4	103.4	476.3	
		Feed Maize 5 (coarsely ground)	Bangkok	Sampling site	549.3	299.4	110.0	848.7	
		Feed Maize 6 (finely ground)	Bangkok	Sampling site	512.3	202.4	113.1	714.7	
		Feed Maize 7 (finely ground)	Bangkok	Sampling site	406.8	nd	70.0	406.8	
		Feed Maize 8 (finely ground)	Bangkok	Sampling site	100.5	nd	nd	100.5	

		Feed Maize 9 (finely ground)	Bangkok	Sampling site	631.3	281.6	114.0	912.9	
		Feed Maize (seed)	Nakhon Ratchasima	Sampling site	139.9	nd	94.9	139.9	
		Sweet corn (seed)	Nakhon Ratchasima	Sampling site	1,748.9	778.1	298.1	2,527.0	
		Waxy Corn (seed)	Nakhon Ratchasima	Sampling site	3,197.1	1,504.8	243.6	4,701.9	
Corn Flour	2025	Corn Flour 1	Ayutthaya	Production site	70.3	nd	nd	70.3	LOD = 15.0
		Corn Flour 2	Ayutthaya	Production site	nd	nd	nd	nd	
		Corn Flour 3	Ayutthaya	Production site	78.9	nd	nd	78.9	
		Corn Flour 4	Samut Prakan	Packaging site	nd	nd	nd	nd	
		Corn Flour 5	Chachoengsao	Production site	84.8	nd	nd	84.8	
		Corn Flour 6	Ayutthaya	Production site	75.8	nd	nd	75.8	
		Corn Flour 7	Nakhon Pathom	Packaging site	143.8	nd	nd	143.8	
		Corn Starch	Bangkok	Packaging site	nd	nd	nd	nd	

Note : nd = not detected

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Citrinin

Sample name	Year	Sample type	Sample Source	Source Category	Citrinin Contamination (µg/kg)	Note
Red Yeast Rice	2026	Red Yeast Rice 1	Bangkok	Sampling site	801.2	
		Red Yeast Rice 2 (full grain)	Bangkok	Sampling site	417.5	
		Red Yeast Rice 3	Phitsanulok	Production site	879.5	
		Red Yeast Rice 4	Bangkok	Production site	4,252.3	
		Red Yeast Rice 5	Bangkok	Sampling site	835.3	
		Red Yeast Rice 6	Bangkok	Sampling site	886.1	
		Red Yeast Rice 7 (full grain)	Bangkok	Sampling site	2,123.3	
Rice	2026	Polished rice 1	Bangkok	Sampling site	nd	LOD = 5.0
Red Yeast Rice Dietary Supplement	2026	Red Yeast Rice Dietary Supplement 1 (capsule)	USA	Production site	nd	LOD = 5.0
		Red Yeast Rice Dietary Supplement 2 (capsule)	USA	Production site	nd	
		Red Yeast Rice Dietary Supplement 3 (capsule)	USA	Production site	nd	
		Red Yeast Rice Dietary Supplement 4 (capsule)	USA	Production site	nd	
		Red Yeast Rice Dietary Supplement 5 (tablets)	USA	Production site	nd	

Note : nd = not detected

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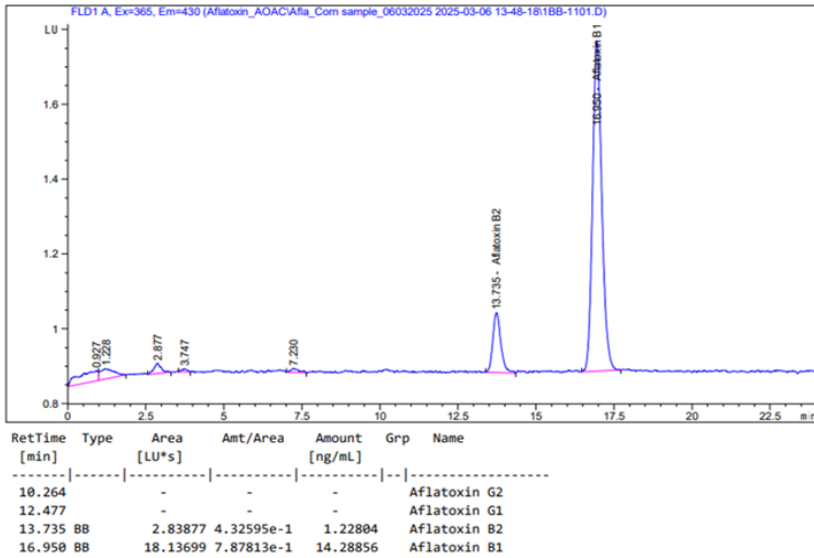
Ochratoxin A

Sample name	Year	Sample type	Sample Source	Source Category	Ochatoxin A Contamination (µg/kg)	Note
Coffee	2026	Roasted Coffee Beans 1	Nan	Packaging site	nd	LOD = 0.2
		Roasted Coffee Beans 2	Phayao	Packaging site	nd	
		Roasted and Ground Coffee 1	Phayao	Packaging site	nd	

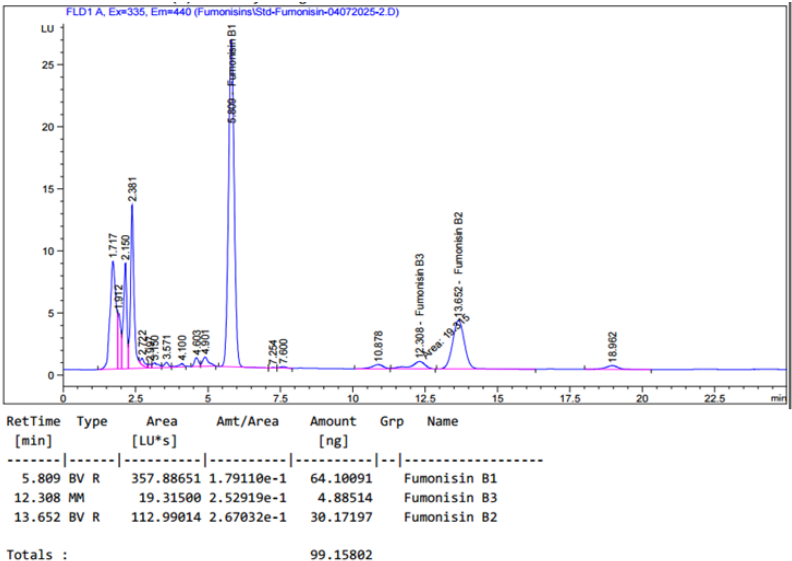
Note : nd = not detected

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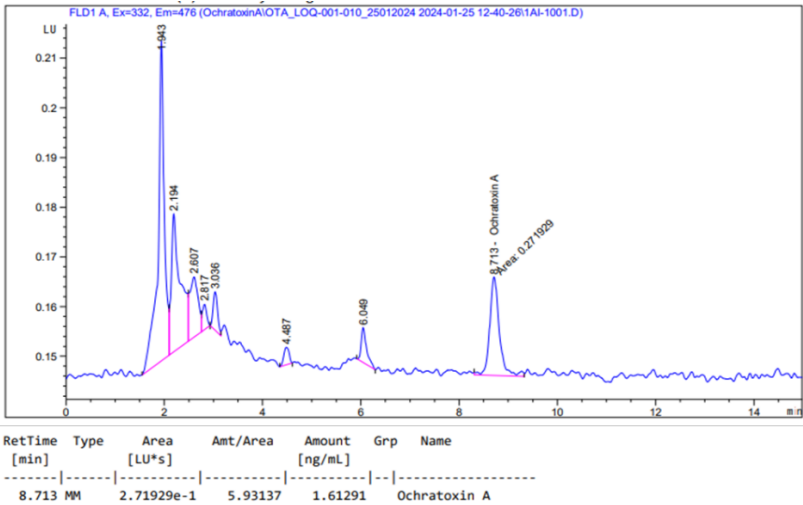
Mycotoxin Chromatograms



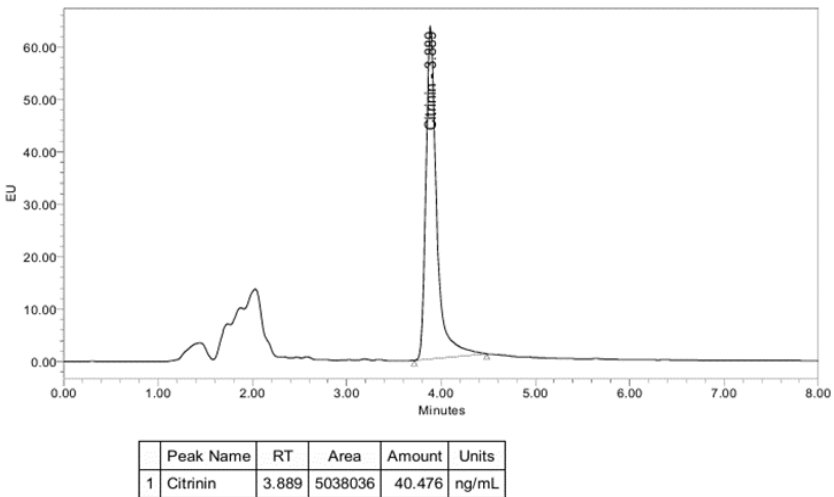
Chromatograms of HPLC analysis of Aflatoxins in Feed Maize



Chromatograms of HPLC analysis of Fumonisins in Feed Maize



Chromatograms of HPLC analysis of Ochratoxin A in Dried Chili



Chromatograms of HPLC analysis of Citrinin in Red Yeast Rice

Limit of Detection and Limit of Quantitation

Mycotoxin	Test method	Limit of Detection (LOD) µg/kg	Limit of Quantitation (LOQ) µg/kg
Aflatoxin B1	In-house method based on AOAC (2023) 993.17	0.6	1.5
Aflatoxin B2		0.6	1.5
Aflatoxin G1		0.6	1.5
Aflatoxin G2		0.6	1.5
Fumonisin B1	In-house method based on AOAC (2023) 2001.04	15.0	50.0
Fumonisin B2		15.0	50.0
Fumonisin B3		15.0	50.0
Citrinin	In-house method based on Journal of AOAC International Vol. 99, no. 4, 2016	5.0	20.0
Ochratoxin A	In-house method based on AOAC (2023) 2000.09	0.2	0.7

National regulations for maximum level of mycotoxins

Mycotoxin	Product	Maximum Level; ML (µg/kg)				note
		THAI FDA ⁽¹⁾	Codex ⁽²⁾	EU ⁽³⁾	Other	
Total Aflatoxin	Peanuts	20	15	15	15 ⁽⁴⁾ , 20 ⁽⁸⁾	Taiwan FDA/ US. FDA
	Maize		15			
	Husked rice		20			
	Polished rice		5			
	Maize and rice			10	10 ⁽⁴⁾	Taiwan FDA
	Cereals and products derived from cereals			4	4 ⁽⁴⁾	Taiwan FDA
	Cereal-based foods for infants and young children		10			
	Chili pepper		20	10	10 ⁽⁴⁾	Taiwan FDA
	Food, other	20			10 ⁽⁴⁾ , 20 ⁽⁸⁾	Taiwan FDA/ US. FDA
Fumonisin B1+B2	Raw maize grain	4,000	4,000	4,000	4,000 ^{(4) (8)}	Taiwan FDA/ US. FDA
	Maize flour and maize meal	2,000	2,000	2,000	2,000 ^{(4) (8)}	Taiwan FDA/ US. FDA
Citrinin	Red yeast rice				5,000 ⁽⁴⁾	Taiwan FDA
	Food supplements based on red yeast rice	100 ⁽¹⁰⁾ <10.7 µg/day ⁽¹¹⁾		100 ⁽⁹⁾	2,000 ⁽⁴⁾	Taiwan FDA

	Red yeast rice pigments				200 ^{(4) (6)}	Taiwan FDA / GB 1886 19-2015 (China)
Ochratoxin A	Dried Chili	30	20	20	20 ⁽⁴⁾	Taiwan FDA
	Roasted coffee			3	5 ^{(4) (6) (7)} 10 ^{(12) (13)}	Taiwan FDA / TIS 522-2561 / GB 2761-2011 (China) / TAS 5700-2018/ TAS 5701-2018

Regulations reference

1	THAI FDA (P414)	Ministry of Public Health. (2563) Notification of Ministry of Public Health (No 414) B.E. 2563 : Standards for Contaminants in Food. Thailand Food and Drug Administration. Ministry of Public Health. p. 7- 8 https://exfood.fda.moph.go.th/law/data/announ_moph/V.English/P414_E.pdf
2	CXS 193-1995 (last amended in 2025)	CODEX ALIMENTARIUS International FOOD STANDARDS. (2023) GENERAL STANDARD FOR CONTAMINANTS AND TOXINS IN FOOD AND FEED. CXS 193-1995. p.14 - 54 https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252Fstandards%252FCXS%2B193-1995%252FCXS_193e.pdf
3	Regulation (EU) 2023/915	THE EUROPEAN COMMISSION. (2023). “Maximum levels for certain contaminants in food and repealing Regulation (EC) No 1881/2006” COMMISSION REGULATION (EU) 2023/915 of 25 April 2023, Official Journal of the European Union, p.10-19 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R0915
4	Taiwan FDA (Contaminants and Toxins)	Taiwan Consolidated Sanitation Standard for Pollutants and Toxins in Foods. (2018) “Sanitation Standard for Contaminants and Toxins in Food” Food and Drug Administration (Taiwan). 5 August 2018. p.19 https://bcglobal.bryantchristie.com/marketinfo/reports/peanut%20aflatoxin%20limits/Taiwan%20Consolidated%20Sanitation%20Standard%20for%20Pollutants%20and%20Toxins%20in%20Foods%205AUG2018.pdf
5	GB 1886 19-2015 (China)	Nation Standard of The People’s Republic of China. (2015) “National Food Safety Standards – Food Additive Red Yeast Rice”. Nation Standard of The People’s Republic of China GB 1886 19-2015. https://www.chinesestandard.net/PDF/English.aspx/GB1886.19-2015
6	TIS 522-2561	TIS 522-2561 ; Thai Industrial Standards Institute (TISI) Roasted Coffee
7	GB 2761-2011 (China)	Nation Standard of The People’s Republic of China. (2011) “China’s Maximum Levels for Mycotoxins in Foods”. Nation Standard of The People’s Republic of China GB 2761-2011. https://www.gob.mx/cms/uploads/attachment/file/868844/Documento_15-GB_2761_limoites_de_ficotoxinas.pdf

8	The US.FDA	The U.S. Food and Drug Administration (2000). “Regulatory guidance for three mycotoxins that may be present in raw grains, ingredients, animal food (feed) and human food: aflatoxin, deoxynivalenol (vomitoxin), and fumonisin.”. The U.S. Food and Drug Administration. p. 5-8 https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-action-levels-poisonous-or-deleterious-substances-human-food-and-animal-feed
9	Regulation (EU) 2019/1901	THE EUROPEAN COMMISSION. (2023). “COMMISSION REGULATION (EU) 2019/1901 of 7 November 2019 amending Regulation (EC) No 1881/2006 as regards maximum levels of citrinin in food supplements based on rice fermented with red yeast <i>Monascus purpureus</i>” COMMISSION REGULATION (EU) 2019/1901 of 14 November 2019, Official Journal of the European Union, p.3 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1901
10	THAI FDA	กระทรวงสาธารณสุข. (2567). “คำแนะนำการใช้ส่วนประกอบสำคัญในผลิตภัณฑ์เสริมอาหาร”. ประกาศสำนักงานคณะกรรมการอาหารและยา. สำนักงานคณะกรรมการอาหารและยา. กระทรวงสาธารณสุข. หน้า 97 https://food.fda.moph.go.th/food-law/announ-fda-194
11	THAI FDA	สำนักงานคณะกรรมการอาหารและยา. (2567). “อย. เฝ้าระวังผลิตภัณฑ์เสริมอาหาร ข้าวยีสต์แดง”. [ระบบออนไลน์]. (31 ตุลาคม 2568) https://www.fda.moph.go.th/news/ยีสต์แดง
12	TAS 5700-2018	National Bureau of Agricultural Commodity and Food Standards Ministry of Agriculture and Cooperatives. (2018) “ROBUSTA GREEN COFFEE” THAI AGRICULTURAL STANDARD. TAS 5700-2018. P.5 https://acfs-backend.acfs.go.th/storage/ProductStandards/Files/20190624165300_803969.pdf
13	TAS 5701-2018	National Bureau of Agricultural Commodity and Food Standards Ministry of Agriculture and Cooperatives. (2018) “ARABICA GREEN COFFEE” THAI AGRICULTURAL STANDARD. TAS 5701-2018. P.5 https://acfs-backend.acfs.go.th/storage/ProductStandards/Files/20190625123845_193079.pdf