



Effect of Consumption of Commercially available Vegetables and Fruits with Calcium rich Foods

Kavindya Samarakkody, Vinodani Lakshika and Udaya Jayasundara
Department of Chemistry, Institute of Chemistry Ceylon, Sri Lanka

Introduction

- Calcium, which is one of the key minerals most frequently linked to human health is cannot be produced by human body, it must be obtained through food.
- Oxalic acid, citric acid and phytates which are present in fruits and vegetables can bind with calcium and form insoluble salt complexes.
- It will reduce the calcium absorption in the human body.
- Calcium deficiency may cause osteoporosis, hypocalcemia, weak nails, and slower hair growth.

Method

Sample collection

Determination of calcium sorption ranges
i. Preparation of calcium standard solutions
ii. Sample preparation
iii. Calcium detection

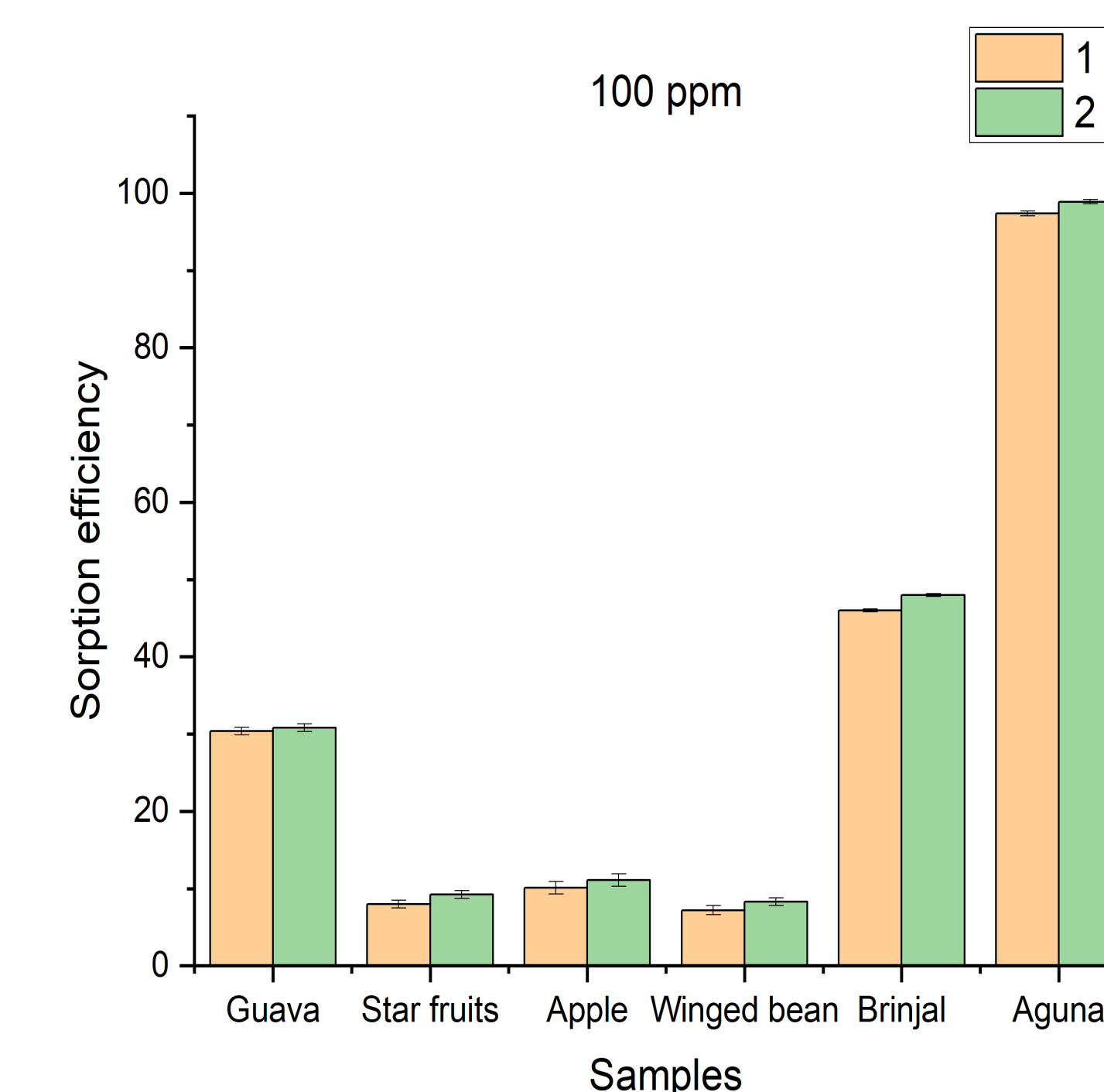
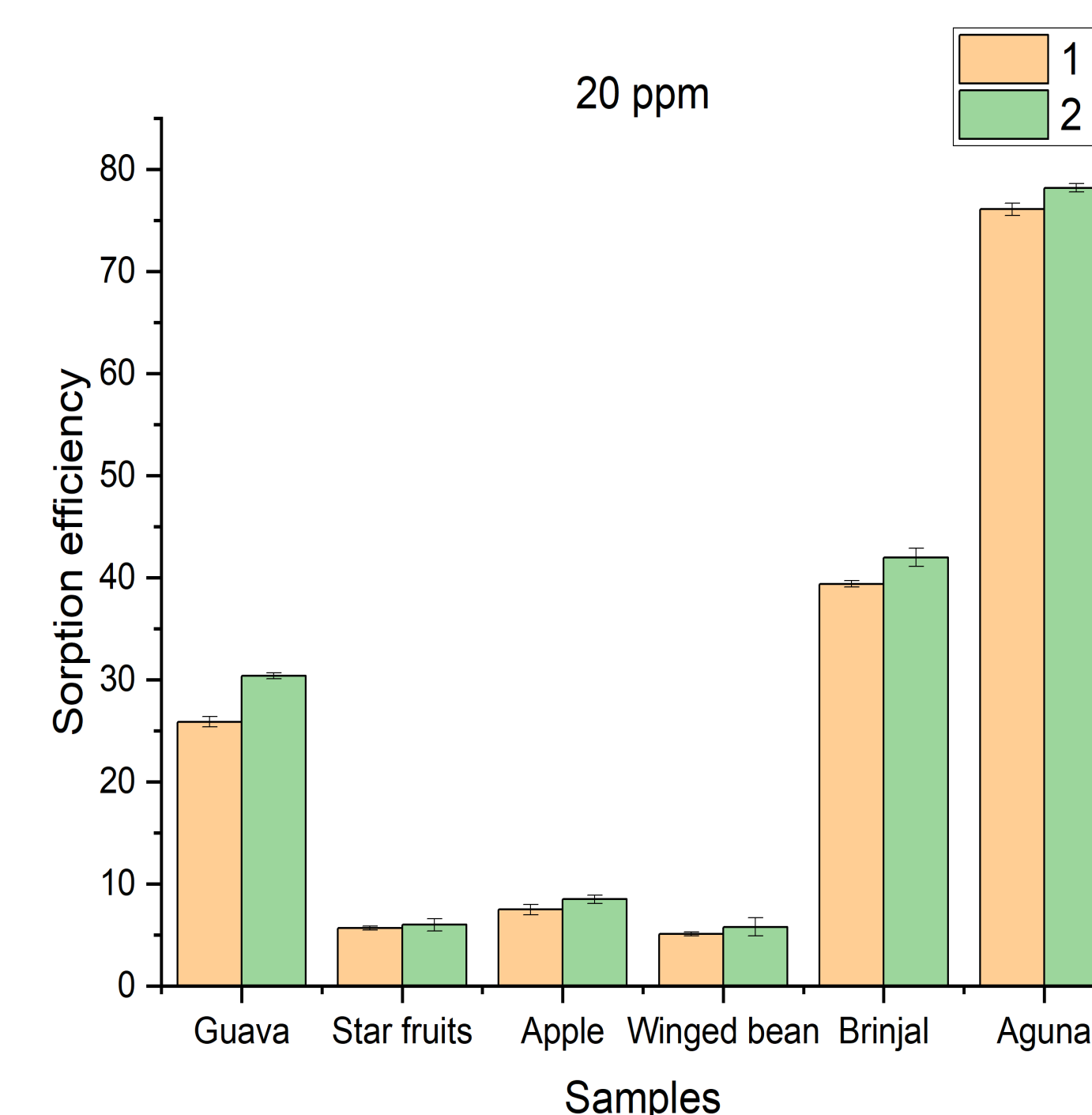
Determination of calcium sorption in milk, tofu and yoghurt
i. Sample Preparation
ii. Calcium detection



Results and discussion

Table 01 - Initial and final calcium concentrations of vegetables and fruits

Sample	Initial Calcium mass (mg)	Calcium mass after soaked in 20 ppm (mg/10g)		Calcium mass after soaked in 100 ppm (mg/10g)	
		1 hr.	2 hr.	1 hr.	2 hr.
Guava	1.88 ± 0.11	2.59 ± 0.05	3.04 ± 0.03	3.04 ± 0.05	3.08 ± 0.05
Star fruit	0.48 ± 0.05	0.57 ± 0.02	0.60 ± 0.06	0.80 ± 0.05	0.92 ± 0.05
Apple	0.64 ± 0.04	0.75 ± 0.05	0.85 ± 0.04	1.01 ± 0.08	1.11 ± 0.08
Winged beans	0.41 ± 0.03	0.51 ± 0.02	0.58 ± 0.09	0.72 ± 0.06	0.83 ± 0.05
Brinjal	3.71 ± 0.07	3.94 ± 0.03	4.20 ± 0.09	4.60 ± 0.02	4.80 ± 0.02
Aguna Kola	7.26 ± 0.02	7.61 ± 0.06	7.82 ± 0.04	9.74 ± 0.03	9.89 ± 0.03



Conclusion

- Consuming calcium-rich foods like milk, yoghurt, and tofu within an hour of a main meal that includes above mentioned fruits could result in adverse health effects due to a calcium deficiency.

Calcium concentration variation of fruits and vegetables with milk, tofu and yoghurt

