

Effect of soybean-to-water ratios on physicochemical properties, proximate composition, and sensory characteristics of soy yogurt

Marinich Net^{1,2}, Sela KONG^{1,2,3}, Manit SAY^{1,2}, Reasmeay Tan^{1,2*}

¹ Faculty of Chemical and Food Engineering, Institute of Technology of Cambodia, Russian Federation Blvd., P.O. Box 86, Phnom Penh, Cambodia

² Research and Innovation Center, Institute of Technology of Cambodia, Russian Federation Blvd., P.O. Box 86, Phnom Penh, Cambodia

³ Department of Research, University of Puthisastra, Phnom Penh 12211, Cambodia

INTRODUCTION & AIM

This study aims to :

- Improve the quality of soy yogurt by investigating the effects of different ratios of soybean to water
- Determine the physicochemical parameters, proximate compositions, and sensory properties of soy yogurt (SY).
- Observe the shelf-life of selected SY at 4°C for 14 days.



METHOD

Study conditions and preparation of soy yogurt

- T1 – commercial product (Control)
- T2 – ratio 1:5 (w/v%)
- T3 – ratio 1:6 (w/v%)
- T4 – ratio 1:7 (w/v%)

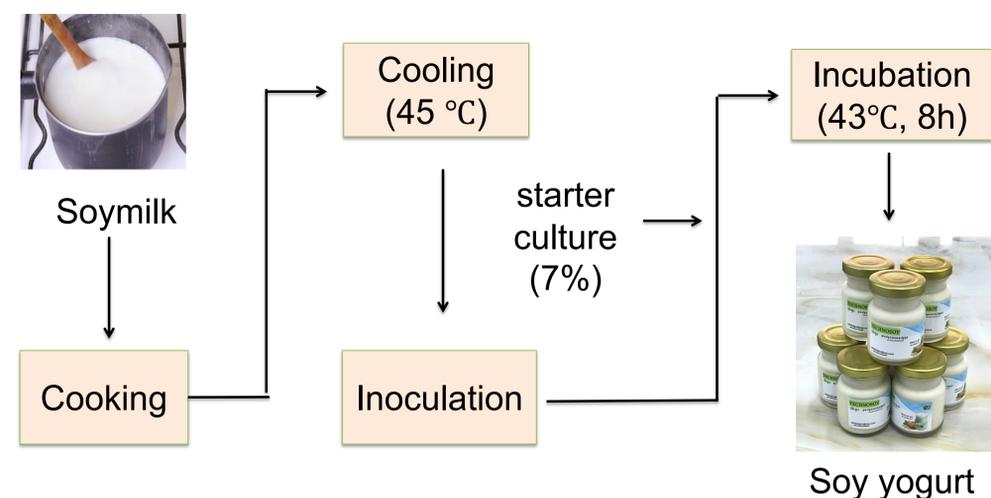
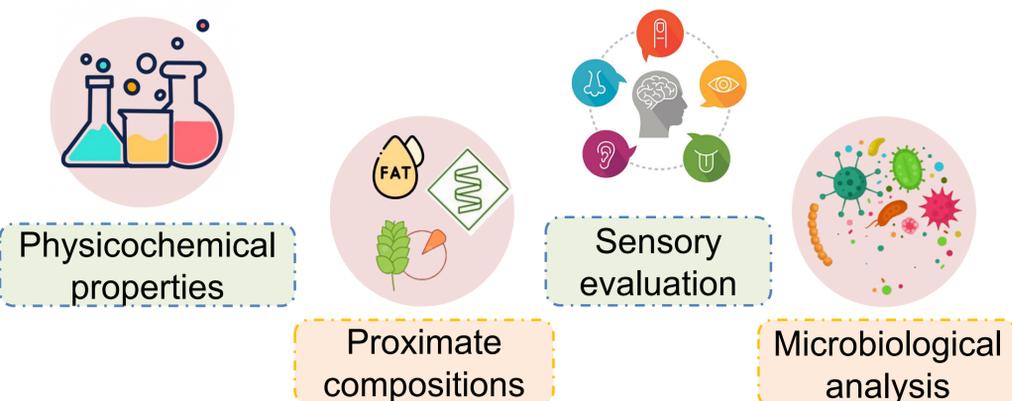


Figure 1. Soy yogurt processing [1]

Quality analysis



RESULTS & DISCUSSION

Table 1. Physicochemical properties of soy yogurt

Sample	pH	Total acidity (%)	Total soluble solid (°Brix)	Water holding capacity (%)	Consistency (cm/30s)
T1	4.13±0.00 ^a	0.59±0.07 ^d	15.33±0.05 ^d	73.68±0.02 ^d	7.83±0.15 ^a
T2	4.37±0.01 ^b	0.33±0.05 ^c	9.60±0.1 ^c	51.48±0.55 ^c	12.13±0.32 ^b
T3	4.38±0.00 ^b	0.27±0.07 ^b	8.93±0.15 ^b	40.06±0.85 ^b	16.2±0.05 ^c
T4	4.39±0.01 ^b	0.26±0.02 ^a	8.63±0.05 ^a	37.83±0.74 ^a	18.15±0.15 ^d

Table 2. Proximate compositions of soy yogurt

Sample	Ash content (%)	Moisture content (%)	Fat content (%)	Protein content (%)	Carbohydrate content (%)
T1	0.05±0.005 ^b	83.22±0.02 ^a	0.24±0.13 ^a	2.81±0.26 ^a	13.67±0.47 ^b
T2	0.23±0.007 ^b	88.25±0.10 ^b	0.19±0.02 ^a	3.03±0.66 ^a	8.33±0.58 ^a
T3	0.05±0.004 ^b	89.06±0.07 ^c	0.26±0.14 ^a	4.94±2.20 ^a	5.68±2.32 ^a
T4	0.02±0.001 ^a	89.39±0.03 ^d	0.36±0.05 ^a	3.96±2.51 ^a	6.24±2.61 ^a

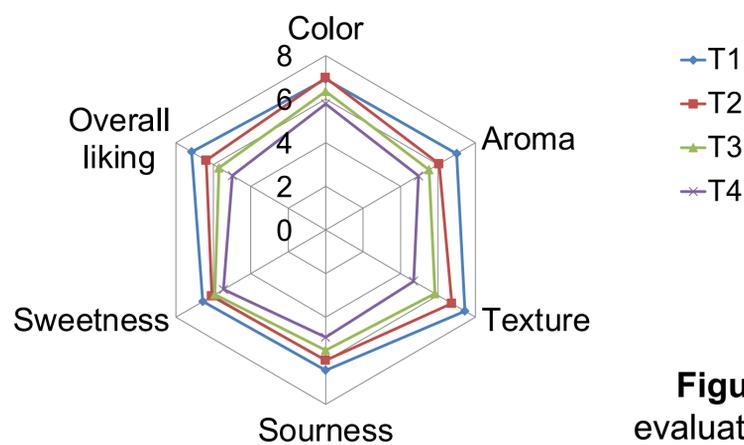


Figure 2. Sensory evaluation of soy yogurt

Table 3. Quality change of soy yogurt during storage

Parameters	Storage periods (Days)				
	0	1	4	7	14
pH	4.38±0.01 ^c	4.37±0.005 ^c	4.35±0.02 ^c	4.27±0.00 ^b	4.17±0.02 ^a
Acidity (%)	0.32±0.05 ^a	0.33±0.02 ^a	0.37±0.07 ^b	0.38±0.05 ^b	0.44±0.05 ^c
TSS (°Brix)	9.20±0.1 ^d	9.07±0.05 ^{cd}	8.87±0.05 ^c	8.30±0.2 ^b	7.16±0.20 ^a

Noted: superscript letters (a, b) differ significantly from each other ($p < 0.05$)

Microbial count: There were non-detectable of microbial counts such as total plate count, yeast and mold count, and total coliform of soy yogurt during 14 days of storage at 4°C.

CONCLUSION

The SY made from ratio of 1:5 (soybean-to-water) had a better result comparing to ratio of 1:6 and 1:7 and also be safely consumed for up to 14 days of storage at 4°C.

FUTURE WORK / REFERENCES

[1] Shahbandari, J., Golkar, A., Taghavi, S.M., Amiri, A., 2016. Effect of storage period on physicochemical, textural, microbial and sensory characteristics of stirred soy yogurt. *International Journal of Farming and Allied Sciences*. 5, 476–484