

EVALUATION OF POST HARVEST VALUE AND QUALITY OF CURED BLACK TURMERIC (*Curcuma caesia*) BY DIFFERENT PROCESSING METHOD

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INTRODUCTION

- *Curcuma caesia* (black turmeric or black zedoary) - bluish-black rhizome, endangered species
- Post harvest processing of black turmeric involves washing, cleaning and curing
- Over cooking spoils the color of the final product and affect the quality (Weiss, 2002)
- To avoid the above circumstances, different processing methods were adopted in this experiment



OBJECTIVES

- ❖ To assess the time taken for boiling of black turmeric rhizomes to get good quality dried product and to assess the effect of curing on the quality parameters of cured black turmeric.

MATERIALS AND METHODS

- Design : RBD
- No. of treatments : 8
- No. of Replication : 3
- Treatment Details :
 - T1 - Traditional rhizome boiling for 40 minutes and drying**
 - T2 - Traditional rhizome boiling for 60 minutes and drying**
 - T3 - Traditional rhizome boiling for 90 minutes and drying**
 - T4 - Improved processing for 10 minutes (using TNAU model boiler) and drying**
 - T5 - Improved processing for 20 minutes (using TNAU model boiler) and drying**
 - T6 - Improved processing for 30 minutes (using TNAU model boiler) and drying**
 - T7 - Dipping in boiling water for 10 minutes and drying**
 - T8 - Raw rhizome sliced with 3 mm thickness and drying**
- The initial weight of the sample taken for the experiment was 1.0 kg.



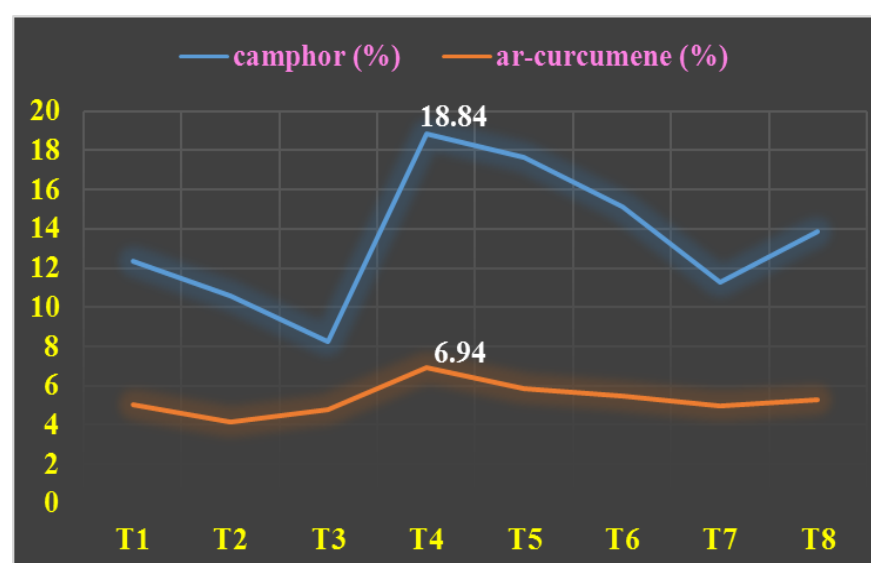
RESULTS

- The final weight (429.70 g) of the rhizome was the highest in the treatment T7 (Dipping in boiling water for 10 minutes and drying).
- The highest dry rhizome recovery was noticed in T7 treatment.
- The minimum time (6 days) was taken by the treatment T8 (Raw rhizome sliced with 3 mm thickness and drying).
- Among the quality parameters, camphor content (18.84 per cent) and ar-curcumenene content (6.9 per cent) were the highest in the treatment T4 (Improved processing for 10 minutes and drying - using TNAU model).
- However, the compound 1,8-cineole content was noted to on par in all processing methods.

Table 1. Effect of different processing methods on dried rhizome traits of Black turmeric

Treatment	Initial weight of rhizome (g)	Final weight of rhizomes (g)	Dry recovery (%)	Time taken for drying (h)
T ₁	1000.00	310.50	15.53	170
T ₂	1000.00	322.25	16.11	175
T ₃	1000.00	288.20	14.41	170
T ₄	1000.00	297.40	14.87	165
T ₅	1000.00	301.30	15.07	160
T ₆	1000.00	335.25	16.76	160
T ₇	1000.00	429.70	21.49	155
T ₈	1000.00	173.00	8.65	147
Mean	1000.00	307.20	15.36	162.75
SEd	-	1.26	0.63	12.06
CD (0.05%)	-	2.65	1.34	25.87

Fig. 1. Effect of different processing method on quality traits of Black turmeric



According to Sankaracharya and Natarajan (1975) the boiling of turmeric rhizomes as essential to reduce the drying time and to gelatinize the starch. Slicing the rhizomes prior to drying reduces drying time and yields turmeric with lower moisture content and better curcuminoid extractability (Govindarajan, 1980; Buescher and Yang, 2000).

The steam cooking had several advantages over traditional cooking by water boiling in terms of fuel consumption and the quantity of rhizomes that could be cured per batch and also reduction of labour in turmeric processing (Jayashree and John Zachariah, 2012).

CONCLUSION

Hence, the rhizome dipped in boiling water for 10 minutes and drying may be adjudged as the best processing technique to enhance the high recovery of dry weight and improved processing for 10 minutes and drying using TNAU model to improve the quality of black turmeric.

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