

**RAW MATERIALS DEVELOPMENT FOR THE
SURVIVAL OF NIGERIAN FOOD AND ALLIED
INDUSTRIES IN THE 21ST CENTURY**



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**EFFECT OF GERMINATION ON TANNIN CONTENT
OF SOME NEWER SORGHUM CULTIVARS**

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INTRODUCTION

Sorghum (*Sorghum bicolor*) has been a vital staple food for millions of people in the semi Arid Tropics¹ and represented about 37% of the total food grains production in these regions². In different parts of the world, several efforts are directed towards alleviating the detrimental effects of the harmful constituents such as tannin and cyanide in sorghum seeds by either direct removal of seed testa, enzyme inactivation, fermentation or by extraction¹. Germination of sorghum seeds generates the fermentable mono and disaccharides through the activity of α and β amylases developed in the seeds³. This study aims to investigate whether tannin in sorghum seeds could be reduced when seeds are germinated for different periods.

MATERIALS AND METHODS

Six different cultivars of sorghum namely SK 5912, L533, L1499, L187, KSV8 and Mori were obtained from Institute of Agricultural Research (IAR), Zaria and used for this work. Twenty-gram sample of each cultivar was cleaned, steeped, germinated and kilned. The steeping schedules used include wet steeping for 10 hr, air resting for 18hr, wet steeping for 8hr. and air resting for 12 hr. The steeped seeds were then germinated for 5 days at temperatures ranging between 20°C and 28°C. During germination, humidification by wetting with water as well as regular turning of the grains was carried out. The unfermented and germinated samples of each of the six sorghum cultivars were analysed for moisture and Tannin content. Moisture was determined according to the AOAC. method.⁵ Tannins were estimated by the modified procedure of Maxon and Rooney as described by Price et. al.,⁶

RESULTS AND DISCUSSIONS

The result of Analysis of ungerminated and germinated sorghum cultivars are presented in table 1. Tannin content (mg/ml) of ungerminated sorghum seeds were 0.030, 0.085, 0.102, 0.102, 0.039 and 0.123 for cultivars SK 5912, L533, L1499, L187 KSV8 and Mori respectively. Germination period up to 5 days slightly increased tannin content to 0.063, 0.126, 0.153, 0.153, 0.071 and 0.199 for cultivars SK 5912, L533, L1499, L187, KSV8 and Mori respectively. This could be as a result of solubilization of tannin when the seeds were soaked in water and migration of tannin to the outer layer as a result of germination, as indicated by the browning of the germinated seeds. This result is in line with work of Ahmed et. al.¹

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Table 1: Effect of Germination on Tannin Content of Sorghum

Cultivars	Moisture Content ungerminated Sorghum Samples (%)	Moisture Content of germinated Sorghum Samples (%)	Tannin content of ungerminated Sorghum (mg/ml)	Tannin Content of germinated Sorghum (mg/ml)
SK5912	6.89	8.0	0.030	0.063
L533	6.47	5.0	0.085	0.126
L1499	6.68	6.90	0.102	0.153
L187	6.86	7.50	0.102	0.153
KSV8	7.43	5.0	0.039	0.071
MORI	7.14	6.0	0.123	0.199

Values represent means of three determinations.