REFINING SORGHUM-TEFF INJERA FORMULATIONS AND TECHNOLOGY FOR COMMERCIAL VIABLE FOOD APPLICATIONS IN ETHIOPIA

Abadi G. Mezgebe and Kebede Abegaz
School of Nutrition, Food Science and Technology, College of Agriculture, Hawassa University
Emails: dgebre@hu.edu.et; abadigebre84@gmail.com

INTRODUCTION

- Food security is the biggest challenge as a result of climate change in Africa [1]. Drought is one of the major impacts of climate change. Sorghum & millets are well adapted and appropriate alternative cereals to harsh climatic conditions [2, 3].
- Production of staple injera from sorghum has considerable economic benefits over the expensive teff. Sorghum is much lower in price and faster in fermentation compared to teff, while both are gluten free for consumer [4].
- Formulations of optimum sorghum-teff mix that do not affect consumer choices/preferences of injera are required to take advantage of the economic benefit from sorghum. This study was aimed to refine sorghum-teff injera formulations and technology for industrial application with trained panelists.

EXPERIMENTAL: INJERA MAKING

MATERIALS:
- Sorghum variety: Melkam, Merera, Waxy, local sorghum
- Reference: 100% teff (red and white color)

METHODS
- Milling and extraction – conventional disc milling
- Substitution: 30, 50, 65%
- Standard protocol of injera making [5, 6]
- Sensory evaluation – descriptive sensory profile (DSP) and discriminative sensory test (DST) using trained panelist

RESULTS & DISCUSSION - DISCRPTIVE SA (1)

- Regular sorghum injera at 30% was essentially similar in textural quality compared to 100% Teff (Fig A).
- Sensory panel reported that 30% sorghum and 70% teff can make injera with similar aroma, taste and mouthfeel properties to injera from teff 100% (Fig B).

DISCRIMINATIVE TEST (2)

- Triangle Test - designed to determine whether a perceivable sensory difference exists or not between the types of injera (mixes vs. 100% teff).
- The trained panel evaluation showed that sorghum at 30% was the same as 100% teff injera (regardless varieties of sorghum used in this study).
- Panelist were able to discriminate the teff injera from the formulations at only higher ratio of sorghum varieties (50% & above).
- The triangle test was significant and showed that injera of 50% waxy sorghum was not different from 100% teff injera.

CONCLUSION

Sorghum-Teff injera formulated at 30:70 produced the same injera quality the same as 100% teff injera. Waxy sorghum resulted in better quality injera than regular sorghum at 50% teff substitution. When more sorghum addition to teff is required, waxy sorghum can be the first choice. These formulations are promising for industrial application in commercially viable injera production with market opportunities of the flour mix and its injera.