Tropentag, September 14-16, 2022, hybrid conference

"Can agroecological farming feed the world?
Farmers' and academia's views"

Fermentation and germination effects on physiochemical and nutritive value of child feeds in northern Kenya

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Abstract

Developing countries suffer from poor weaning diets, with inadequate calories, protein, and micro-nutrients, leading to high levels of malnutrition, morbidity, and mortality among children aged 6–24 months. Annually, malnutrition contributes to 45 % of under-five deaths, underscoring the urgency of accelerating the fight against malnutrition. In Kenya, significantly higher rates of malnutrition have been reported among pastorals' communities, especially in children aged 6–24 months. In Marsabit, child feeding practices focus on provision of multi-mix porridge as main sources of nutrients, however, malnutrition prevalence rates are high, maybe due to phytochemicals that exist naturally in plant foods, being bound and less bio-available. These phytochemicals can be altered by processing, like fermentation and germination. Microorganisms used in fermentation are capable of modifying bio-availability of phytochemicals in plant foods. This study aimed at investigating food processing methods, that could hinder bio-availability of nutrients and physiochemical composition of child feeds. The participatory approach study was conducted in Marsabit county, Northern Kenya, involving pastoral and agro-pastoral communities. Snowballing sampling technique was used to identify societal actors, who were mothers or caregivers of children aged 6–24 months. A total of 87 societal actors were identified and 9 FGDs conducted, based on ethnicity, women groups and region. FGD themes focused on the child feed ingredients, their accessibility, affordability and processing methods. A total of 9 porridge mix samples were collected and subjected for ongoing proximate analysis: 4 non-fermented, 4 fermented and 1 germinated. Preliminary findings indicate the societal partners have vast knowledge on optimal child feeding practices, can identify the different food types vital for child's growth and development, and foods that can be used when a child is unwell. Also, child feeds are available and accessible to mothers, but their nutritional value can be enhanced by selected affordable and acceptable food processing methods

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at the household and community level, such as fermentation. In conclusion, societal partners also incorporate food processing methods such as roasting, which reduce the content of nutrient inhibitors, increasing the bio-availability of nutrients and can be enhanced by other methods, including fermentation and germination for better outcomes.

Keywords: Bio-availability, child feeds, fermentation, food processing, germination, malnutrition