INTRODUCTION: Replacement of wheat flour by other locally available flours in bread making is economically important in South East Africa. Cassava is widely available in the region, but bread quality is impaired when cassava is used in the bread formulation. To overcome this problem, different additives were tested in the preparation of cassava composite dough flours.

METHODOLOGY: Emulsifiers, diacetyl tartaric ester of monoglycerides (DATEM), sodium stearoyl-2-lactylate (SSL) and lecithin (LC); hydrocolloids, carboxymethylcellulose (CMC) and high-methylated pectin (BIG) were added during dough preparation of the composite flours (cassava-maize-wheat, 40:10:50). Each emulsifier was tested in combination with the hydrocolloids at 0.1, 0.3 and 0.5% levels while hydrocolloids were used at 3% level. Bread quality attributes determined were specific loaf volume, crust color, crumb moisture and firmness during storage.

RESULTS AND DISCUSSION: The specific volume of the composite breads significantly improved with the addition of hydrocolloids (7.5 to 10.2%) and in combination with emulsifiers (19 to 25%) compared with bread without any additives. Breads prepared with CMC and emulsifiers at 0.1% and 0.3% level had brownness index within the consumer acceptance range of 84 – 86. Breads containing either CMC or BIG and emulsifiers (0.1%) had similar firmness (~5.1 N) while breads prepared with CMC and LC or DATEM (0.3%) had a softer crumb structure (4.4 N). Breads with CMC and emulsifiers had better resistance to starch retrogradation during 4-days storage.

CONCLUSIONS: The results show that emulsifiers and hydrocolloids can be combined in an optimal way to improve the baking quality of composite breads.