Abstract This study aimed to investigate the effects of chickpea-based leavening extract (CLE) on certain white wheat bread characteristics. CLE increased the loaf volume, height and redness while it reduced the moisture, lightness and yellowness of the bread. Although crumb hardness of CLE bread was observed to be higher than commercial baker’s yeast (CBY; *Saccharomyces cerevisiae*) bread on the first day, this value did not show any significant difference during two days storage. Adhesiveness and chewiness of CLE bread were affected significantly, whereas springiness was not. Loaf volume, symmetry, crust colour, crust structure, texture, mouthfeel, odour, general acceptability and purchasing intent of CLE bread was scored higher as a result of sensorial analyses. We concluded that CLE could be used in breadmaking as an alternative to CBY for consumers who want a different taste and flavour. The use of CLE can be made widespread by performing and standardising the commercial production.