Isolated soy protein and transglutaminase addition on pan bread

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The use of ingredients with high protein content on bread dough affects the gluten network, which can be minimized by the use of transglutaminase-TGase. The aim of this work was to incorporate isolated soy protein-ISP (X₁=0-15%) and TGase (X₂=0.01-0.15%) in pan bread by surface response methodology evaluating the texture (firmness) of the crumb and the moisture content of the loaves on the day 1, 4 and 7, after processing. The firmness parameter ranged between 0.97 and 34.33N, 2.02 and 49.06N, and 2.49 and 56.71N and the moisture content varied between 34.50 and 40.86%, 34.72 and 40.81%, and 34.79 and 41.32% for the days 1, 4 and 7, respectively. The firmness was influenced (P<0.10) by the ISP and TGase by ANOVA, which showed p-values<0.001, F_{calc}/F_{tab}>6.04 and R²>92.76%. The moisture content of the loaves were influenced (P<0.10) only by the ISP on the days 1 and 4, and by both independent variables on the day 7, once ANOVA showed p-values<0.001, F_{calc}/F_{tab}>6.04 and R²>92.76%. The addition of ISP promoted higher values for firmness due to the dilution of the gluten network, however, presented higher values for moisture content due the greater water absorption capacity. The use of TGase showed greater effect on the firmness of the loaves with better results between 0.08-0.10%, probably due the cross-linking between the gluten network protein and the ISP, which evidences the importance of this enzyme on bakery products manufacture. Acknowledgments to CAPES, CNPQ, BUNGE, SOLAE and AB ENZYMES.