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Study of the growth of a strain of lactic acid bacteria *S. thermophilus* T2 modeling test

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The fermentation of many foods by lactic acid bacteria is one of the conservation techniques practiced by man since antiquity. They act via some of their metabolism products, capable of inhibiting the development of bacterial spoilage flora and/or pathogens. In recent years this method of conservation has aroused the interest of scientists indeed some lactic acid bacteria are able to produce antibacterial substances called bacteriocins. Their use as an alternative to chemical additives has opened new avenues for obtaining better quality food products with a longer shelf life. To optimize the culture conditions and the production of bacteriocin we have been brought back to carry out an experimental design to evaluate the effect of 3 factors (T°, salt and pH). The effect of pH, temperature and NaCl on the growth and acidifying power of *S. thermophilus* has been studied at three levels: (5, 6 and 7) for the pH factor (32, 37 and 42°C) for the temperature factor T° and (0, 30 and 60 g/l) for the concentration of salt. At the end of this experiment an experimental model has been established which gives a very good concordance with the theoretical model ($R^2= 0.91$).

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