

5 - Teaching-Learning Sequences as Innovations for Science Teaching and Learning | Empirical

SP - (15869) - EVOLUTION OF THE MODELS OF MILK FERMENTATION OF SECONDARY STUDENTS IN THE DEVELOPMENT TLS

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Short Abstract

Modeling is a scientific practice that allows students to learn, describe and predict scientific phenomena through representations, images, models, etc. However, modeling is a complex process that requires the acquisition of several scientific skills. As students acquire skills to work with models, they develop not only scientific skills, but also social, linguistic, etc. This study presents the evolution of the models on the transformation of milk into yogurt (lactic fermentation) by 23 10th grade students from two schools in the NAME OF THE COUNTRY at different times of a teaching-learning sequence (TLS), focused on the preparation of yogurt and if this is a healthy food. In order to analyze the models proposed by the students, a simplified school model was used, consists of three phases (1. reproduction of bacteria, 2. acid formation and 3. protein denaturation), finding 5 categories depending on the phases that could be identify in their answers. The evolution of the models was studied over 4 moments: before the TLS, after knowing the composition of milk and yogurt, after making homemade yogurt, and at the end of the TLS after knowing the scientific model. The results showed that the student models are getting closer to the reference school model as the TLS progresses, detailing all the phases in the last two moments and decreasing the frequency of students who do not indicate any model. However, there is not a significant number of students who include the three phases in the model, so work must continue in this regard.