

Rennet from Camels Prove Superior for Cow's Milk

Chr. Hansen



For decades rennet has been an important element in the portfolio of Chr. Hansen, one of the world's leading suppliers of food ingredients. Rennet is a complex of enzymes produced in mammalian stomachs. The main enzyme in rennet is the protease chymosin, which is able to initiate coagulation in milk. Thus rennet is an important ingredient for production of cheese.

Traditionally, rennet is extracted from the stomachs of young, slaughtered calves. Chr. Hansen applies modern techniques for efficient production of calve chymosin. However, it was discovered recently that chymosin from camels is actually better at initiating coagulation in cow's milk. This has moved Chr. Hansen into synchrotron research.

"We are already selling camel chymosin in large quantities on the global market, but this new development leaves us with a number of questions," explains Hans van den Brink, department manager for

enzymes innovation at Chr. Hansen.

We want to understand the mechanism

Generally, one would assume chymosin from calves to be better for cow's milk, kid goat chymosin better for goat's milk, etc.

"Thus it is surprising that camel's chymosin is better for cow's milk. We are not content with just accepting this fact; we want to understand why. Obviously, we hope that once we understand the mechanism, we may be able to develop even better ingredients for the dairy industry," says Hans van den Brink.

In partnership with Professor Sine Larsen's group at the Department of Chemistry, University of Copenhagen, the company has initiated comparative studies of chymosin from camels and calves. The samples were investigated at the synchrotron in Grenoble.

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Hans van den Brink, department manager for enzymes, Chr. Hansen

information we need," says Hans van den Brink.

Cooperation with academia is the key

"Through the group at University of Copenhagen we were able to get a fair amount of beam time in Grenoble. But obviously we are looking forward to the opening of new large scale facilities in Lund. Actually we did some experiments in Lund some years ago in an earlier setup there. It just makes things easier that you are able to travel there, get your experiment done, and return in one day."

Still, the coming nearby facilities will not make the cooperation with the university redundant:

"Without the cooperation with Sine Larsen's group we would not have obtained the data, nor would we have been able to convert the data into useful knowledge. I could not imagine for us to build this type of capacity ourselves. Cooperation with academia is the key to this kind of projects."

New Horizons Are Opening to the Food Industry

World leading facilities within neutron and X-ray scattering, the ESS and MAX IV, will open in the Oresund region over the next few years. However, there is no need to wait for these facilities to open. Scientists at Technical University of Denmark and University of Copenhagen are already in gear for X-ray and neutron scattering projects. These could either be full research projects in their own right or preliminary projects leading up to projects at existing or the coming large scale facilities. Contact the universities to learn more about what they can offer you.

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