Rice pudding is a staple food all over Scandinavia. In Norway, it is known under the name *risengrynsgrøt*, which translates into “rice grain porridge”. It is eaten all year round, but peaks in popularity around Christmas, when it is prepared in copious amounts and served for lunch, leaving plenty of leftovers that can be used to prepare a popular dessert known as *riskrem* (rice cream) by mixing with sweetened whipped heavy cream.

The rice pudding is prepared by letting short-grained rice (*Oryza sativa* subsp. *japonica*) slowly simmer in milk, thereby allowing the dominant amylopectin starch to thicken the milk. Some people find that dairy foods can cause bloating and that reducing their intake of dairy products, or switching to lactose-reduced products, may alleviate the symptoms. With this in mind, I therefore opted for lactose-reduced milk when preparing rice pudding. Since the amylopectin starch only needs a temperature of 60–70 °C to swell and absorb the milk, I mixed the cooked rice and the milk and brought them up to the boiling point before covering the pot with a lid and leaving it in an oven dialed in at 100 °C for an hour or two. In this way, the risk of burning the milk is reduced to a minimum. The surprise came when I removed the lid and discovered that the entire rice pudding had turned light brown (Figure 69.1)!

It turned out that the lactose-reduced milk was to blame for the unexpected color (Figure 69.2). The milk sugar lactose is a disaccharide, consisting of two simple sugar residues: glucose and galactose. People with lactose intolerance lack the enzyme lactase in the small intestine, which cleaves lactose into these two sugar molecules. What happens then is that lactose is transported unchanged to the large intestine, where bacteria from the microbiota feed on the lactose, resulting in production of gas. The solution to the problem is simple: you can add the enzyme lactase directly to the milk. This means that lactose-reduced milk contains glucose and galactose instead of lactose, and both these sugars are sweeter than lactose. In fact the sweetness increases approximately by a factor of four. The sweet taste is noticeable, and this is actually utilized when preparing a fit-for-all chocolate milk served in schools in Norway, which is lactose free and also contains significantly less added sugar than normal sweetened chocolate milk.

Having explained the presence of the monosaccharides glucose and galactose, we are moving closer to an understanding of the light brown rice pudding. Glucose and galactose can react with proteins in the Maillard reaction. And what is more, glucose and galactose react 10–20 times faster than lactose (Naranjo, 2013). However, since the temperature was just below the boiling point, the browning proceeded relatively slowly. This is why the color was clearly visible, but luckily without the smell or taste being affected.

**FIGURE 69.1** Rice pudding made with lactose-reduced milk turns light brown.

**FIGURE 69.2** The milk sugar lactose reacts slowly with proteins in the Maillard reaction. When it is enzymatically split up into glucose and galactose, the browning reaction proceeds significantly faster.
Rice Pudding

- 300 g short-grained rice
- 8 dL water
- 2 L full fat milk
- salt to taste

Bring the water to a rolling boil, add the rice, and let it simmer on low heat for 20 min. In a separate pot, heat the milk to close to the boiling point and add it to the pot with rice. Bring to boil while constantly scraping the bottom to prevent the milk from burning. Cover the pot with a lid and transfer it to an oven set to 90–100 °C. After 30 min, it is recommended to stir up the rice, which may have sunk to the bottom. The pudding will continue to thicken as the rice slowly absorbs more of the liquid. The consistency is normally right after one or two hours. Depending on the type of rice used, or if left for longer than two hours, the consistency may become too thick. In this case, adjust consistency with milk prior to serving. Add salt to taste. Serve with sugar and cinnamon. A dollop of butter, which will melt in contact with the warm pudding, is also nice.

REFERENCE