

Dairy-Like Ice Cream and Cheese Created from Soybeans

Soybean ice cream and cheeses were successfully created with flavour additions to overcome the “beany” taste.

SOY MILK AS an alternative to cow’s milk is well established, but how well do high-protein soybeans function in ice cream and cheese products? This research made strides in creating plant-based “dairy” products.

Whole soybean seed, high-oil and low-oil press cakes were tested. Press cakes had greater protein content than whole soybeans, which led to a better texture in both the cheese and ice cream-like products.

Preparing a frozen soybean dessert began with making soy milk by extracting protein from the press cakes and adding

sugar, vanilla and a pinch of salt to an automatic ice cream maker. The first batch resulted in icy products that layered when frozen, so a 1% sodium alginate stabilizer was added to develop a creamier texture resembling ice cream. Adding vanilla, chocolate or strawberry flavouring masked any beany soybean flavour.

To create cheese, tofu was made from the extracted soy milk, and oil, pectin, gums and salt were added to create a cream cheese-like product. The additions of herb, lemon or cucumber flavours hid the beany taste. Producing a hard cheese-like soy product was trickier and required



Soybean Ice Cream

Soybean Cream Cheese

adding agar flakes and starch to achieve the desired texture. The beany taste was also apparent, so flavouring would be desired. ▶

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MPSG INVESTMENT \$10,000

DURATION 1 year

Soybean-Corn Tortillas

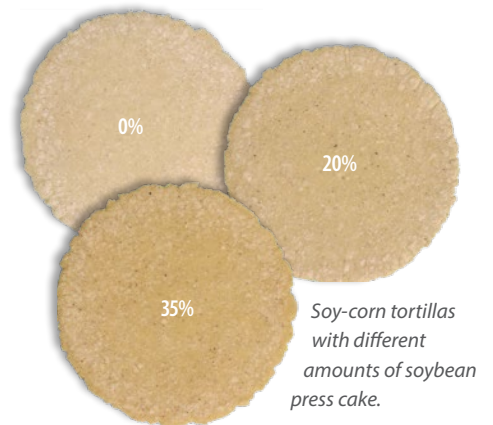
Adding soybeans to corn tortillas resulted in a slightly darker, softer tortilla.

TRADITIONALLY, TORTILLAS ARE made from wheat or corn flour. Soybean press cakes are made from soybean meal by-products of oil processing. They are high in nutrients including protein, fibre, residual oil and micronutrients. Adding soybean press cake has the potential to improve the nutritional value of tortillas.

Corn flour, salt, xanthan gum, water and different amounts of soybean press cake (0–35%) were used to create tortillas. The gum was necessary since the press cake was not as sticky as corn flour.

Tortillas made with soybeans added were yellower and redder than traditional corn tortillas, but visually, this difference was small. Adding soybeans resulted in a softer tortilla that was easier to break.

Nutritionally, soybeans contain more trypsin inhibitors than corn. Trypsin inhibitors reduce the availability of trypsin, which is an enzyme necessary for protein digestion. Adding soybeans increased the level of trypsin inhibitor activity, which could be problematic, especially for anyone on a diet with limited protein



Soy-corn tortillas with different amounts of soybean press cake.

intake. The cooking methods used in this study were not able to deactivate these inhibitors since they are relatively heat stable. Subjecting soybean press cakes to more severe heat treatments prior to incorporation may reduce the level of trypsin inhibitor activity and improve protein digestion. ▶

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MPSG INVESTMENT \$32,000

DURATION 2 years