

The Secret to Cooking Whole Beans: A Scientific/Culinary Investigation

Soaking dry beans in a salt brine, or adding 1% salt while cooking beans, reduced cook time by 12–14% while improving flavour and texture.

CONFLICTING INFORMATION IS extensive in bean cookery. Cookbooks, industry guidelines, chefs and even packaging directions provide different options for adding salt when cooking beans.

Traditionally, the belief has been you should not add salt to beans until after they are cooked or else they'll have an unpleasant, grainy texture. Many culinary experts still opt to use salt, but disagree on when it should be added or in what amount. This project set out to create better guidelines for cooking dried pulses.

This study reviewed average cook times along with changes in flavour and texture with varying amounts of salt introduced in contrasting methods. The effects of salt addition while cooking, salt brine soaking and water quality (i.e., water hardness) on the final qualities of a cooked bean were evaluated for navy, black, pinto, kidney and faba beans.

Properly cooked beans have a slightly firm bite and a smooth, creamy texture that is not watery or gritty. They should appear shiny with bright colour and not be broken when cooked. The flavour should be earthy and not salty.

First, average cook times were determined using a Mattson cooker apparatus, which is a quantitative method

that measures the time it takes to puncture 80% of the beans with weighted plungers. This was then compared to an in-kitchen chef evaluation of doneness. Finally, consumers tested cooked beans with two salt treatments – salted brine and salt in the cook water against an unsalted control, to determine if salt negatively affected sensory characteristics when added during cooking.

Salt played an important role in the finished texture and flavour development of beans. Brined and 1% salt addition treatments improved the flavour and texture of beans, while reducing the cooking time by 12–14%. Texture improved once beans cooked with salt were drained and cooled for 2–4 minutes. More specifically, black beans in brined treatments had better colour retention with smoother seed coats, enhancing appearance. In consumer taste trials, the unsalted control beans were the least favourite texture, dispelling the notion that salt in the cook water creates an undesirable texture.

On the other hand, too much salt had a negative impact on cooking beans. An increase of salt in the 2–3% range, toughened the seed coat and resulted in an unpleasant, gritty texture. This was most apparent with kidney and faba beans where 2–3% salt additions increased average cook time and reduced the acceptability of the cooked bean.

Water chemistry (both soft and hard water) played a significant role in increasing cook time and decreasing texture of finished cooked beans when compared with distilled water. Cooking

DEVELOPED FROM THIS STUDY

Cooking Recommendations for Beans

2% BRINE SOAK

Prepare by adding 2.5 teaspoons (15 g) of salt to 3 cups of water, stir until fully dissolved.

Navy Beans

average cook time = 34 minutes

Black Beans

average cook time = 28 minutes



1% SALT IN COOKING WATER

Prepare by adding 1.5–2 teaspoons (10 g) to 4 cups of fresh, distilled boiling water.

Faba Beans

average cook time = 9 minutes

Kidney Beans

average cook time = 36 minutes

Pinto Beans

average cook time = 26 minutes

beans with hard water resulted in longer cook times than cooking with soft water.

Although chefs prefer cooking pulses using a pressure cooker, home preparation by boiling is still the most accessible method. The results from this project may be incorporated into existing recipes to provide better pulse experiences by adding some salt while cooking beans to balance the flavour of the final dish. Using these results, Red River College will produce a set of guidelines to cook pulses, engaging students in the learning process to ensure the next generation of chefs understand how to make the perfect pulse plate. ▶