



Spherical Mango Ravioli (Basic Spherification)

Background

This recipe uses basic spherification which is ideal for obtaining spheres with a very, very thin membrane that is almost imperceptible in your mouth. It results in a sphere that easily explodes in your mouth as if there is no solid substance between your palate and the liquid. The main problem of this technique is that once the sphere is removed from the calcium bath, the process of jellification continues even after rinsing the sphere with water. This means that the spheres need to be served immediately or they would convert into a compact gel ball with no magical liquid inside. The other issue of this technique is that jellification does not occur if the liquid acidity is high ($\text{PH} < 3.6$) but this can be corrected by adding sodium citrate to the liquid to reduce the acidity level before the spherification process. The Basic Spherification technique doesn't work with ingredients that have high calcium content e.g. dairy.

Ingredients

Ravioli

- 250 g of distilled water (tap water contains calcium which will interfere. If distilled water is not available, the next best is low mineral content bottled water e.g. Volvic or filtered water using a standard kitchen water filtration jug)
- 1.3 g sodium citrate
- 1.8 g sodium alginate (0.36%)
- 250 g mango puree

Calcium Bath

- 1000 g of water (see above)
- 20 g calcium lactate (0.18% Ca)

Preparation

1. Start by preparing the calcium bath. Dissolve the calcium lactate in the water and cool in the fridge. [Optional] To aid the formation of spherical shapes when you pour the alginate solution into the bath, you can also increase the density of the bath by adding sugar to the calcium bath up to 20%.
2. [Already performed for Science Makers] Mix the sodium citrate with the 250 g of water. This will act as a buffer to lower the acidity because the basic spherification process does not work if the main ingredient is too acidic (PH<3.6). It will also act as a sequestrant for free calcium ions.
3. [Already performed for Science Makers] Mix the sodium alginate in the water using an immersion blender until the sodium alginate is completely dissolved. If this is your first time doing this, be aware that this may take longer than expected.
4. [Already performed for Science Makers] Once the sodium alginate is dissolved, bring to a boil over high heat, stirring constantly. Remove from heat and let it cool at room temperature. Once it is cold, mix with the mango puree. Let it rest for an hour to eliminate some of the air bubbles created by the immersion blender. You can speed this process up by straining through a sieve or use a magnetic stirrer rather than a blender to avoid air bubbles in the first place.
5. You are now ready to start creating the spheres! Remove the calcium bath from the fridge. Scoop the mango mixture with a half sphere tablespoon measure and carefully pour it into the calcium bath. Stir the bath gently with the slotted spoon without touching the spheres. If you let them sit in the bottom of the bath, they will flatten and if you let them float, the top won't be covered with the calcium solution and won't gel.
6. Leave the ravioli "cooking" for about 2 minutes in the calcium bath and then carefully remove it using a slotted spoon. Then rinse it very gently with water to remove the calcium.
7. Consume immediately since the jellification process continues even after removing the sphere from the calcium bath and will eventually convert into a solid gel sphere with no magical liquid inside.

Further Reading

- [Original recipe](#) at [molecularrecipes.com](#)
- [Basic spherification technique details](#) at [molecularrecipes.com](#)
- [10 Tips to Create a Perfect Sphere](#) at [molecularrecipes.com](#)