The Challenge of Drying Berries

Don Mercer
Associate Professor, Food Science
Kemptville Campus University of Guelph

For as long as I can remember, there has always been something special about blueberries. At family gatherings when we have blueberry pie, my parents invariably pull out the old stories of me tying into a basket of blueberries when I was four. My techniques for eating them have hopefully become somewhat more refined with age, and I don't tend to get covered in the blue staining juice nearly as much anymore. Over the years, my appreciation of nature's efficiency has definitely increased when looking at the structure of most berries and other fruits.

The whole purpose of fruits and berries is protecting the seeds to ensure the ongoing sustainability of the plant. Berries surround the seeds with a moist fleshy material to provide nutrients and water when the seeds begin to grow. To keep the moisture around the seed, many berries are covered with a waxy cuticle material. While the cuticle is extremely good at keeping the moisture in, it is a challenge for anyone who wants to dry the berries and get the moisture out, especially while keeping them whole.

Previously in our lab, we have tried washing the waxy deposit off the skins with various solvents in an attempt to make them more permeable to moisture. Some very harsh solvents that would ultimately be totally unsuitable for actual food usage were tested out of academic curiosity. They yielded little or no success. We even tried rolling certain berries on a bed of fine needles to create small puncture holes for the moisture to escape. The only thing we succeeded in doing was frustrating the living daylights out of our research student. Throughout all this, there was the constant reminder of how well nature takes care of protecting the seeds.

When drying berries at home, you always need to keep in mind that you are fighting nature's desire to retain moisture. In the case of cranberries, it is a simple matter to cut the berries in half prior to drying. Blueberries can be "checked" by placing them in a strainer and immersing them briefly in boiling water until the outer skin develops small cracks. Care must be taken not to let the berries split open, and you will need to do a few practice runs to get things right. Cherries have a very tough skin which should be punctured several times with a sharp toothpick even after pitting the cherry and cutting it in half.

Of the various berries that I have dried, my personal favourite is strawberries. The delicate aroma during the drying process is very enticing. Strawberries dry wonderfully well when cut into thin slices (about 0.5 cm or a quarter of an inch thick) which maximizes the surface area exposed to the warm air during drying.

Berries which are more segmented like blackberries or mulberries really need to be mashed and dried on a solid tray. Raspberries, which do not have a waxy layer, will dry whole if the hollow side is placed downwards on the mesh tray of the dryer.

If you have a home food dehydrator, it is best to avoid excessively high temperatures which will potentially reduce the quality of your dried products. An air temperature of about 55ºC (approximately 130ºC) works quite well. At this temperature, sliced strawberries will take about 8 to 16 hours to dry. Blueberries and cherries can take up to 24 hours to dry, and halved cranberries may take 10 to 14 hours to reach their final desired level of moisture. In all cases, there should be no visible moisture in the final product and the texture should be firm or leathery.

Dried berries can be used in a variety of ways. They can be mixed with other dried fruits and nuts to make an enjoyable trail mix, or blended with breakfast cereal to add additional flavour. There are numerous books and on-line references available if you ever want to try your hand at this relatively straight-forward technique of preserving berries for future enjoyment.

Strawberries are more easily dried in home food dehydrators than blackberries (right)