

Asparagus residues make soup powder

The juice and fibres from the lowest section of the asparagus plant make a good basis for instant soup powders.

When white asparagus is harvested, the stalks are cut to length and the lowest part is discarded as residue. At present, they end up as compost as they are too 'woody', but they do have plenty of flavour. In her PhD research, Joanne Siccama (Food Process Engineering) used the asparagus residues to make high-grade vegetable powders that could be used for instant soup.

Vegetable powders are usually manufactured using a belt dryer and hot air. But a lot of aromas are lost from the vegetables using that approach. The manufacturer compensates for the loss of flavour by adding artificial flavourings. Spray drying is another well-known drying technique for making powders. The juice is sprayed to form tiny droplets, which dry quickly and therefore retain the aromas better.

Anti-stick

Siccama used a press to separate the asparagus juice from the fibres in the lower sections. Before the juice could be reduced to 95 per cent dry matter in the spray dryer, maltodextrin had to be added. 'That prevents the asparagus powder from becoming sticky – for sugars make up two-thirds of the solid components in the asparagus juice,' explains Siccama. In addition, maltodextrin forms a coating around the droplets, helping to retain the aromas. Siccama was also able to make good use of the asparagus fibres: when dried and ground, they could replace some of the maltodextrin.

Test panel

Siccama got a trained sensory panel to compare four of her asparagus powders with two instant soup powders made by the project partner Unilever. The Unilever soup powders were made using a belt dryer, with or without adding an artificial aroma mix. She found the soup with the aroma mix had the strongest flavour but the powders from the spray dryer (without added aromas) tasted stronger than the belt dryer powder without an aroma mix. This means Siccama's asparagus powder could be an alternative to artificial flavourings in instant soup. ss