

Retention of polyacetylenes and carotenoids in carrot during cooking

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A group of compounds called polyacetylenes (including falcarinol, falcarindiol and falcarindiol-3-acetate), which are present in carrots, is gaining interest due to their potential anti-inflammatory⁽¹⁾ and anti-cancer effects⁽²⁾. In contrast to the carotenoids also present in carrots, it is not well known how the concentration of polyacetylenes is affected by domestic cooking. In order to quantify intake in population studies it is important to know how the compounds are affected by preparation.

Carrots were peeled and cut into 5-mm disks, quartered lengthwise or left whole. They were then boiled for 5, 10, 15 or 20 minutes in 300 ml water per 100 g raw carrot, and the carrots and cooking water analysed by HPLC.

Whole carrots retained more polyacetylenes than disks ($p < 0.001$) and batons ($p < 0.001$). For carotenoids, there was no significant losses or differences among shapes.

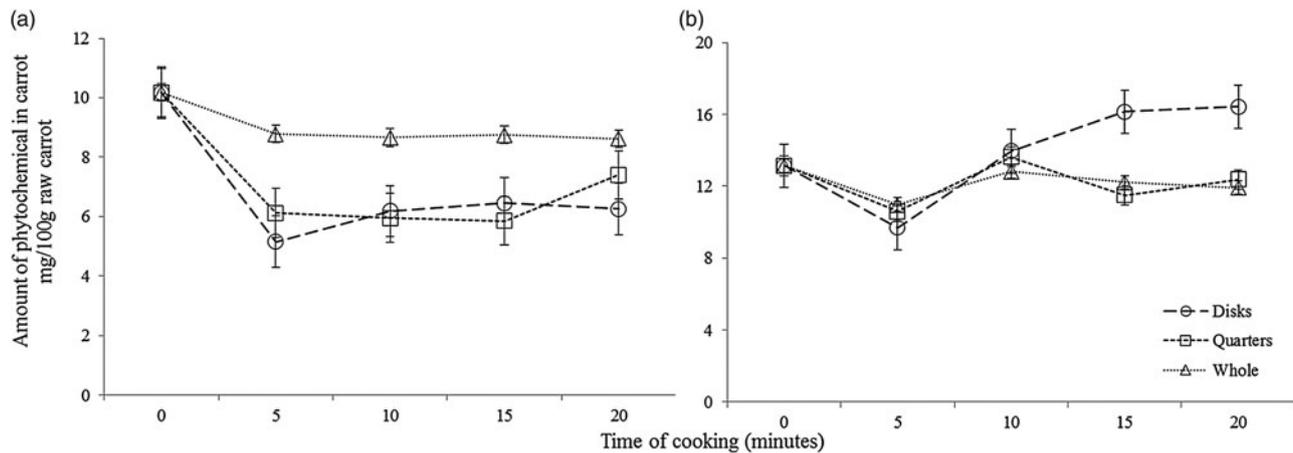


Fig. 1. Retention of total polyacetylenes (a) and total carotenoids (b) during boiling of carrots

Boiling of carrots leads to degradation of phytochemicals and leaching into the water, and up to 4 % of the lost polyacetylenes were still present in the water. Changing the way the carrots are processed from disks to whole could increase intake, e.g. by 28 % at 10 minutes.

In contrast to carotenoids, the way carrots are prepared has substantial effect on the content of polyacetylenes, so small changes in processing could provide large increases in the intake of these phytochemicals. Other cooking methods such as steaming, frying, blanching and freezing could also be investigated. In order to understand the exposure to polyacetylenes, it is also necessary to assess the bioavailability of these phytochemicals from cooked carrots, as the next step of the present research project.

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