Effect of cooking on the concentration of bioactive compounds in broccoli (Brassica oleracea var. Avenger) and cauliflower (Brassica oleracea var. Alphina F1) grown in an organic system - PubMed

Luzia Caroline Ramos Dos Reis 1 ,

doi: 10.1016/j.foodchem.2014.09.124. Epub 2014 Oct 10.

Affiliations

Affiliations

- [1] Instituto de Ciência e Tecnologia de Alimentos, Universidade Federal do Rio Grande do Sul (UFRGS), Av. Bento Gonçalves, 9500, Prédio 43.212, Campus do Vale, Porto Alegre, RS CEP 91501-970, Brazil.
- [2] Curso de Nutrição, Faculdade de Medicina, Universidade Federal do Rio Grande do Sul (UFRGS), Rua Ramiro Barcelos, 2400, Santa Cecília, Porto Alegre, RS, Brazil.
- [3] Departamento de Engenharia de Minas, Universidade Federal do Rio Grande do Sul (UFRGS), Av. Bento Gonçalves, 9500, Prédio 75, Campus do Vale, Porto Alegre, RS CEP 91501-970, Brazil.
- [4] Instituto de Ciência e Tecnologia de Alimentos, Universidade Federal do Rio Grande do Sul (UFRGS), Av. Bento Gonçalves, 9500, Prédio 43.212, Campus do Vale, Porto Alegre, RS CEP 91501-970, Brazil. Electronic address: alessandro.rios@ufrgs.br.

- PMID: **25442619**
- DOI: 10.1016/j.foodchem.2014.09.124

Effect of cooking on the concentration of bioactive compounds in broccoli (Brassica oleracea var. Avenger) and cauliflower (Brassica oleracea var. Alphina F1) grown in an organic system

Luzia Caroline Ramos Dos Reis et al. Food Chem. 2015.

Abstract

Brassica vegetables have been shown to have antioxidant capacities due to the presence of carotenoids, flavonoids and vitamins. This study evaluates the influence of different processing conditions (boiling, steaming, microwaving and sous vide) on the stability of

flavonoids, carotenoids and vitamin A in broccoli and cauliflower inflorescences grown in an organic system. Results indicated that sous vide processing resulted in greater antioxidant capacity and that all processes contributed in some way to an increased content of antioxidant compounds in both cauliflower and broccoli.

Keywords: Antioxidant capacity; Carotenoids; Kaempferol; Quercetin; Stability; Vitamin C.

Similar articles

- Simultaneous extraction and quantitation of carotenoids, chlorophylls, and tocopherols in Brassica vegetables.

  Guzman I, Yousef GG, Brown AF. Guzman I, et al. J Agric Food Chem. 2012 Jul 25;60(29):7238-44. doi: 10.1021/jf302475d. Epub 2012 Jul 12. J Agric Food Chem. 2012. PMID: 22734504

- Changes in the content of health-promoting compounds and antioxidant activity of broccoli after domestic processing.

  Gliszczyńska-Swigło A, Ciska E, Pawlak-Lemańska K, Chmielewski J, Borkowski T, Tyrakowska B. Gliszczyńska-Swigło A, et al. Food Addit Contam. 2006 Nov;23(11):1088-98. doi: 10.1080/02652030600887594. Food Addit Contam. 2006. PMID: 17071511

- Effects of different cooking methods on the antioxidant capacity and flavonoid, organic acid and mineral contents of Galega Kale (Brassica oleracea var. acephala cv. Galega).

  Armesto J, Gómez-Limia L, Carballo J, Martínez S. Armesto J, et al. Int J Food Sci Nutr. 2019 Mar;70(2):136-149. doi: 10.1080/09637486.2018.1482530. Epub 2018 Jul 23. Int J Food Sci Nutr. 2019. PMID: 30037287

- An overview of health-promoting compounds of broccoli (Brassica oleracea var. italica) and the effect of processing.

  Mahn A, Reyes A. Mahn A, et al. Food Sci Technol Int. 2012 Dec;18(6):503-14. doi: 10.1177/1082013211433073. Food Sci Technol Int. 2012. PMID: 23175779 Review.

- Antioxidant Components of Brassica Vegetables Including Turnip and the Influence of Processing and Storage on their Anti-oxidative Properties.

  Gharehbeglou P, Jafari SM. Gharehbeglou P, et al. Curr Med Chem. 2019;26(24):4559-4572. doi: 10.2174/0929867325666181115111040. Curr Med Chem. 2019. PMID: 30430937 Review.

Cited by

- Glucosinolates and Polyphenols of Colored Cauliflower as Chemical Discriminants Based on Cooking Procedures.

  Nartea A, Fanesi B, Giardinieri A, Campmajó G, Lucci P, Saurina J, Pacetti D,

Fiorini D, Frega NG, Núñez O. Nartea A, et al. Foods. 2022 Sep 30;11(19):3041. doi: 10.3390/foods11193041. Foods. 2022. PMID: 36230116 Free PMC article.

- Hydrothermal Treatment Effect on Antioxidant Activity and Polyphenols Concentration and Profile of *Brussels sprouts* (*Brassica oleracea* var. *gemmifera*) in an In Vitro Simulated Gastrointestinal Digestion Model.

  Doniec J, Florkiewicz A, Dziadek K, Filipiak-Florkiewicz A. Doniec J, et al. Antioxidants (Basel). 2022 Feb 23;11(3):446. doi: 10.3390/antiox11030446. Antioxidants (Basel). 2022. PMID: 35326097 Free PMC article.

- Effects of the Use of Different Temperature and Calcium Chloride Treatments during Storage on the Quality of Fresh-Cut "Xuebai" Cauliflowers.

  Mu B, Xue J, Zhang S, Li Z. Mu B, et al. Foods. 2022 Feb 2;11(3):442. doi: 10.3390/foods11030442. Foods. 2022. PMID: 35159592 Free PMC article.

- Influence of Cooking Method on the Nutritional Quality of Organic and Conventional Brazilian Vegetables: A Study on Sodium, Potassium, and Carotenoids.

  de Castro NT, de Alencar ER, Zandonadi RP, Han H, Raposo A, Ariza-Montes A, Araya-Castillo L, Botelho RBA. de Castro NT, et al. Foods. 2021 Jul 31;10(8):1782. doi: 10.3390/foods10081782. Foods. 2021. PMID: 34441559 Free PMC article.

- Occurrence and Determination of Carotenoids and Polyphenols in Different Paprika Powders from Organic and Conventional Production.

  Ponder A, Kulik K, Hallmann E. Ponder A, et al. Molecules. 2021 May 17;26(10):2980. doi: 10.3390/molecules26102980. Molecules. 2021. PMID: 34067891 Free PMC article.

MeSH terms

-
-
-
-
-
-
-
-

Substances

-
-
-
-
-