

Nutritious value of organic foods



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Abstract

Organic farming is becoming a popular method of producing food, with more people than ever supporting organic sales. This is partly because consumers can believe it is more nutritious and even tastes better. This article examines the claim that organic food is better than non-organic food. Investigating the use of pesticides, both synthetic in conventional food and natural in organic food, and how this affects our health. This article will also compare the nutritional value between certain fruits grown in the two opposing growing methods to help discuss if organic food is better than conventional.

Introduction.

Organic farming is described as an environmentally sustainable and socially responsible method of farming (nassa), it differs from conventional farming as it uses an approach to grow crops and raise livestock that does not use synthetic chemicals, hormones, antibiotic agents, genetic engineering, and irradiation (Forman & Silverstein, 2012). In 2017 the amount of land being used worldwide for organic farming increased to 69.8 million hectares, a 20% increase from 2016. This was the largest increase on record (International, nd). The global sale of organic food has also increased ****calculate percentage change**** from \$18billion (US) in 2000 to \$97 billion (US) in 2017 (“ Worldwide sales of organic foods, 2017 | Statista”, 2019). The demand for organic food is on the rise as many people believe it has a higher nutrient content, and greater health benefits when compared with conventional foods. (bbc good food). Simonne, Ozores-Hampton, Treadwell and House (2016) explains that although consumers can perceive

organic produce to be safer and more nutritious than convention food, very few studies have been published to prove or disprove these thoughts.

This report aims to evaluate the claim “ organic food is better than non-organic/ conventional food” focusing specifically on fruit and vegetables and the health benefits.

Analyse

The effects and use of pesticide in organic and conventional produce.

Chemicals such as pesticides are used in conventional farming to kill agricultural pests, use of pesticides can dramatically increase crop production and produce higher quality food. However, synthetic pesticides are toxic and can cause problems to human health in large doses (“ Food-Pesticides and other chemicals,” n. d., para. 1). Organic farming is still not always synthetic pesticide-free as trace amounts of long-lasting and now banned substances can remain in the soil from past sprays. (Drake, 2006). Organic farming allows the use of pesticides which are derived from natural compounds that quickly degrade after being sprayed (Drake, 2006). One of these is pyrethrum, which the environmental protection agency has labelled as likely to be a human carcinogen. Drake (2016) explains rotenone is another organic pesticide, which has been linked to Parkinson’s disease in rat studies. Although these natural pesticides can be dangerous to health the intensive approval process of organic food means very little residue remains on the produce (Drake, 2006).

The residue levels of authorised pesticides found on both conventional and organic food are commonly below detectable levels (Magos, Arvaniti & Zampelas, 2006). A main concern for consumers is pesticide residue in conventional food although Magos, Arvaniti & Zampelas (2006) expresses that the occurrence of food that is contaminated by pesticides is very stable and the residue levels in conventional food are frequently well below the established tolerated level.

Comparing nutrient values between organic and conventional fruits

An experiment was conducted comparing the nutrient values of organically and conventionally grown goji berries. Results of this indicated that conventional berries contain significantly higher levels of proteins, total sugars, total & insoluble fibres (Pedro et al., 2019). The use of chemical fertilisers increases the absorption and availability of nitrogen which is essential for the plant's growth (Pedro et al., 2019). Nitrate is the main form of nitrogen that soil provides to crops (Magkos, Arvaniti, & Zampelas, 2006). Nitrate levels in food, particularly conventional is an often a concern but studies have shown it is not consistent for non-organic produce to contain higher levels than organic produce (Magkos, Arvaniti, & Zampelas, 2006). Research conducted on organic carrots found them to contain 394mg/kg compared 113 mg/kg, organic lettuce contained 1, 221 vs. 804. 5 mg/kg. (Malmauret et al., 2002, cited in (Magkos, Arvaniti, & Zampelas, 2006). Studies also found much higher nitrate concentrations in organically grown chicory 4, 395mg/kg when compared to 3, 350 mg/kg in conventionally grown (Magkos, Arvaniti, & Zampelas, 2006).

Dr Oates from ABC advises that where you purchase your fresh produce from can make more of a difference to nutrition levels than shopping organically. He recommends buying from farmers markets and local suppliers to ensure produce is fresh, minimising the time spent traveling from paddock to plate.

Antioxidants

Studies have shown organic goji berries to contain higher levels of ash and lipid fats when compared to conventional, this is explained as a result of the plant's response to stress (Pedro et al., 2019). Pedro et al. (2019) explain's that organic crops are more exposed to adverse weather conditions and subject to pests and pathogens. To protect itself the plant produces defence compounds, such as fatty acids which contain minerals and antioxidant functions that act as cofactors to regulate the metabolic compound of the plant (Pedro et al., 2019).

When evaluating and comparing changes in antioxidant metabolism and nutritional quality during the ripening stages of passionfruit from organic and conventional farms. Vitamin C levels reduced during both fruits, although more drastically with organic fruit (Oliveira et al., 2017). Despite this, the organic fruit contained higher levels of Vitamin C. In this case nutritionally desirable antioxidant Phenol levels were found to be higher in conventional produce (Oliveira et al., 2017). Maja M explains that although there are differences in the nutritional content, i. e nitrogen, vitamin C and phenolic compounds of plant produce that has been grown under different cultivation systems, it is difficult to prove the claim that organic food improves human well being or health after consumption.

Conclusion

Organic farming is becoming a very popular method of farming fresh produce, this is partly due to the belief that that is a healthier and more nutritious alternative to conventional food. Studies have shown that pesticides in conventional food can be of concern, though the non-synthetic organic fertiliser still has elements to cause concerns. Chemical fertilizers increase the nitrate level in plants, although research has shown that certain organic produce can contain higher nitrate levels than conventional. Organic produce produces antioxidant compounds to defend itself from pests and the elements, despite this there is evidence that it is not always organic produce containing higher phenol levels. Studies show although there are differences in the nutritional content of plant produce grown under opposing systems, i. e nitrogen, vitamin C and phenolic compounds, it is difficult to prove the claim that organic food is more nutritious than conventional food.

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