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# Potential of moringa (Moringa oleifera) leaf powder for functional food ingredients: A review

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## Abstract

One of the efforts to produce functional foods is using ingredients containing health-beneficial bioactive compounds. Another way to produce functional foods is fermentation generating bioactive compounds or fortification with the bioactive compound extract. An ingredient historically believed to have benefits on health is moringa (Moringa oleifera) leaf powder. Moringa leaf powder is a valuable source of functional ingredients, including protein, vitamins, minerals, and phytonutrients such as carotenoids, tocopherols, polyphenols, flavonoids, alkaloids, and tannins. However, moringa is a plant that is distributed in various tropical countries in the world. Its quality depends on geographical differences, cultivars, environmental conditions, seasons, genotypes, and varieties. This article reviews the bioactive compounds of moringa leaf powder and the characteristics of moringa leaf powder extract. The effect of moringa leaf powder fortification on food product characteristics is also discussed. Moringa leaf powder possesses many pharmacological properties, such as anticancer, anti-inflammatory, hepatoprotective, cardioprotective, and antioxidant ones. The bioactivity of leaf extract is extracting solvent dependent. Therefore, fortification results in nutritional improvement and increasing health benefits of food products. However, the adverse effect is found in sensory. Thus properties, thus the moringa leaf powder fortification level usually is less than 10%. Changes in the functional properties of foods due to moringa leaf powder fortification have been studied to a limited extent. A low level of fortification might not affect the properties of food products. Therefore, moringa leaf powder is potentially used as a functional food ingredient. Some studies reported the toxicological effects of moringa leaf powder and the use of this ingredient, should be below the harmful doses. © The authors.



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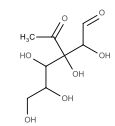
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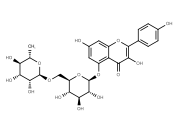
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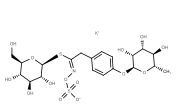
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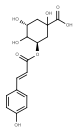
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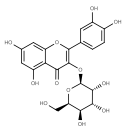
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