

# Prebiotic potential of almonds

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Almonds. Credit: The Almond Board of California's Almond Archive

Almonds, as well as being high in vitamin E and other minerals, are also thought to have other health benefits, such as reducing cholesterol. Recently published work by the Institute of Food Research has identified potential prebiotic properties of almonds that could help improve our

digestive health by increasing levels of beneficial gut bacteria.

Our digestive system maintains large population of bacteria that live in the colon. Prebiotics are non-digestible parts of foods that these bacteria can use to fuel their growth and activity. These 'good' bacteria form part of our body's defence against harmful bacteria and play a role in the development of body's immune system. The prebiotics work by stimulating the growth of these bacteria. However, in order to get to where they are needed prebiotics must be able to get through the upper part of the intestine without being digested or absorbed by the body.

Funded by the Almond Board of California, IFR scientists first used the Model Gut, a physical and biochemical simulator of the gastro-intestinal tract, to subject almonds to the same conditions experienced in the stomach and small intestine. They then added the digested almonds to an in vitro batch system to mimic the bacterial fermentation in the large intestine and monitored its effect on the populations of intestinal bacteria.

The study, published in *Applied and Environmental Microbiology*, found that finely ground almonds significantly increased the levels of certain beneficial gut bacteria. This effect was not seen when the fat content was removed from the almond preparation, suggesting that the beneficial bacteria use the almond lipid for growth, and this is the basis for the prebiotic effect of almonds.

Previous studies have shown that the amount of available lipid is reduced if the almonds are not processed, for example by grinding as in this study or by chewing. The length of time the almond spends in the digestive system also affects the amount of available lipids and proteins. More detailed studies on the digestibility of almonds are now required, and the prebiotic effect of almond lipids needs to be tested in human volunteers.

Source: Norwich BioScience Institutes

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