

Kaempferol – A Potent Antiallergic Flavonoid

Analysis by [Dr. Joseph Mercola](#)

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STORY AT-A-GLANCE

- › Environmental allergies affect 20% of Americans, causing a total of 4 million lost workdays and \$8 billion in annual economic losses. Kaempferol, found in leafy greens, shows promise in natural allergy relief
- › The intestinal enzyme RALDH2, boosted by kaempferol, converts vitamin A-derived retinal to retinoic acid, which helps suppress allergic immune responses through regulatory T-cell development
- › Following an elimination diet will help identify food allergies, but complete avoidance isn't recommended as it leads to malnutrition
- › Vitamin C (300 to 500 milligrams daily) demonstrates antihistamine properties, reducing plasma histamine levels by 40% over two weeks, with red peppers, citrus fruits and parsley being excellent natural sources
- › Quercetin, particularly abundant in onion skins, apples and berries, shows significant antiallergy activity by modulating histamine release, with recommended doses of 500 to 1,000 milligrams taken twice to four times daily

Allergies are a growing health concern in America. According to the Allergy & Asthma Network, around 1 in 5 Americans have an environmental allergy, causing them to miss a total of 4 million workdays per year. In financial terms, it's causing the economy to lose \$8 billion annually.¹

Thankfully, research is showing hope for those currently suffering from allergies. Flavonoids from whole foods, specifically kaempferol, offers natural relief from allergies without having to rely on antiallergy medications.

Kaempferol Provides Antiallergic Benefits

In a short letter published in *Allergy*, researchers from Tokyo University of Science discussed the benefits of kaempferol. Specifically, this flavonoid has been found to have anti-inflammatory properties that help boost the expression of RALDH2, an enzyme produced in the intestines. For those unfamiliar with this process, here's a summary:²

"In the intestines, specialized dendritic cells (DCs) produce an enzyme called RALDH2 (retinaldehyde dehydrogenase 2) which converts retinal, a chemical derived from vitamin A, to retinoic acid. This retinoic acid then promotes the development of regulatory T-cells, a type of immune cell that can suppress the immune response observed in allergies."

Based on this framework, RALDH2 plays a role in allergies, and again, kaempferol has been observed to have a beneficial effect. In their study, the team screened 40 different flavonoids, finding kaempferol to be the most effective.³

To create the test environment, they used an animal allergy model using ovalbumin (OVA), which is a protein found in egg whites. Then, kaempferol was administered, delivering notable results. According to Chiharu Nishiyama, Ph.D., one of the study authors:⁴

"The rapid decrease in body temperature and allergic diarrhea observed after OVA administration were significantly suppressed in mice that were administered kaempferol."

Kaempferol is abundant in leafy green veggies, such as broccoli, spinach and cabbage. According to a study published in *Molecules*,⁵ broccoli happens to have the highest concentration, while blueberries and onions are also good choices.

Keep a List of Your Allergy Triggers

While we're discussing foods, it's important to be aware of any food allergies you have, and the best way to whittle down the list is to do an elimination diet. According to Johns Hopkins Medicine,⁶ the goal of eliminating foods is to find out which of them causes an allergy, then eating them in smaller portions whenever possible. To help you begin, dietitian Barbie Cervoni recommends this strategy:⁷

"Most of the time, you will start slowly by taking out high-histamine foods and logging symptoms. If you find that your symptoms have improved after removing a trigger food, you can omit that food temporarily and attempt to add it back into your diet in about a month. The rate at which you eliminate and add foods back in will be determined by your tolerance and symptoms."

It's important to slowly reintroduce foods once you discover you're allergic to them because leaving them out will lead to malnutrition, which isn't what you want to happen. So, when you're doing an elimination diet, never stick to one type because you'll be severely limiting your nutrient intake to a narrow list. As for the temporary dietary recommendations, here's a short overview:⁸

- **Foods to eat** — Grass fed beef, raw milk and butter, pastured eggs, most fruits and vegetables, and vinegar
- **Foods to avoid** — Processed beverages, meats and seafoods, fish such as sardines, anchovies and tuna, shellfish, nightshade veggies such as tomatoes and eggplant, and certain fruits such as papaya, strawberries, kiwi and pears, and fermented foods such as kimchi and sauerkraut

Again, removing foods that trigger your allergies will be impractical in the long run. As you can see from the list above, several foods, such as fermented vegetables, are an important contributor to optimal health.⁹ Adding more fresh, whole foods will also help during the interim period. In a 2020 study published in *Nutrients*, researchers noted that test participants with mild asthma had better relief from symptoms when eating a low-histamine, Mediterranean-style diet for four weeks.

In addition to this approach, you'll also be able to build your resistance over time by slowly reintroducing allergic foods, as your body is not constantly producing histamines.

As noted in a study published in the *European Journal of Clinical Nutrition*,¹⁰ test participants who constantly ate a conventional diet experienced more skin allergy symptoms. However, the other test group, who started eating a low-histamine diet before switching to a conventional diet, didn't experience an increase in headaches or other allergic symptoms.

Vitamin C Will Help Fight Allergies

Vitamin C, popularly known as ascorbic acid, is regarded for its antioxidant properties and role in supporting important biological functions, such as tissue growth and repair, collagen synthesis, iron absorption and immune function.¹¹ In addition, did you know that it also helps manage the symptoms of seasonal allergies?

According to a study¹² published in *Nutrients*, vitamin C has antihistamine properties, and that a daily dose between 300 and 500 milligrams (mg) "enhanced histamine degradation and inhibited mast cell degranulation." In another study,¹³ test animals affected with bronchoconstriction experienced relief when vitamin C was administered.

A different study explained the mechanism behind the antiallergic benefits of vitamin C. Specifically, this antioxidant eliminates the imidazole ring, a chemical constituent of histamine.¹⁴ Additional research has noted that a daily 2,000-mg dose of vitamin C for two weeks decreased in vivo plasma histamine levels by 40%.¹⁵

Now that you know the benefits of vitamin C on managing allergies, what are the best dietary sources? Whole foods are still preferred, and there's a wide variety for you to choose from. These include red bell peppers, parsley, broccoli, kiwi, strawberries, guava, tomato and all citrus fruits. You'll get significant amounts of vitamin C from your diet if you eat these foods daily along with other bioactive compounds that will support your health.

I also recommend keeping liposomal vitamin C supplement in your medicine cabinet, particularly when acute viral illnesses strike. If I were to become acutely ill, I would take 4 grams of it every hour until I start feeling better, then decrease the dosage slowly over a few days until symptoms improve.

Add Curcumin for Its Antiallergic Effects

Turmeric is a root crop that belongs to the ginger family. It's a beloved spice that forms the basis for many foods. Moreover, it has medicinal properties – ancient methods such as Ayurvedic medicine and Traditional Chinese Medicine have used turmeric to treat various illnesses thanks to its main bioactive compound, curcumin.¹⁶

Thanks to modern technology, researchers have discovered what makes curcumin such a useful tool for natural treatment. As it turns out, it has various anti-inflammatory, antiseptic, antitumor and antioxidant properties. It has antihistamine properties as well, and this was documented in a study¹⁷ published in the International Journal of Research in Medical Sciences.

Here, researchers documented a single participant – a 24-year-old man with a history of severe wheezing. Eventually, he was diagnosed with hay fever, a condition that causes sneezing and nasal congestion whenever your body breathes in allergens.¹⁸ To manage his condition, he was taking different antiallergic medicines.

The team administered a curcumin tablet with a dosage of 500 mg to the test subject twice daily for two months. Afterward, the dosage was lowered to once daily for the following two months. Once the test was completed, the man exhibited better symptoms to the point of significantly reducing his reliance on oral steroids. However, he continued using his inhaled medications.

Consider Adding Quercetin into the Equation

In the video above,¹⁹ Dr. Jin Sung explains the role of quercetin in helping relieve seasonal allergies. According to his findings, he believes that quercetin possesses the

greatest antiallergy activity compared to other flavonoids. Specifically, it works by modulating the release of histamine from basophils and mast cells. This process was also documented in a study published in *Biomedicine & Pharmacotherapy*.²⁰

When it comes to dosing, Sung recommends taking 500 to 1,000 mg of quercetin, two to four times a day during allergy season to help manage the symptoms. Begin with the lowest dose first – 500 mg, twice a day – and gradually increase if necessary.²¹ The reason for this is because the half-life of quercetin is 3.5 to 7.5 hours, so it's best taken in divided doses.

To help improve the results, I recommend taking other supplements to create synergistic effects. These include stinging nettle, butterbur extract, mangosteen extract, ginger, vitamin C and vitamin D.²²

Like vitamin C and kaempferol, quercetin is also found in many whole foods. These include citrus fruits, green leafy vegetables, broccoli, apples, onions, green tea, red grapes, dark cherries and berries, such as blueberries and cranberries. From these examples, the highest amounts are found in apples – especially the skins – as well as onions, broccoli, cherries, berries and green tea.²³

If you're looking for a concentrated source of quercetin, look no further than onion skins – they have 77 times more quercetin compared to the flesh.²⁴ But if eating onion skins doesn't appeal to you, consider making a broth made from them instead.

Sources and References

- ¹ Allergy & Asthma Network, "Allergy Statistics in the US"
- ^{2, 3, 4} News-Medical Life Sciences, December 16, 2024
- ⁵ *Molecules* 2024, 29(9), 2007, Abstract
- ⁶ Johns Hopkins Medicine, "Low Histamine Diet"
- ^{7, 8} Very Well Health, "What Is a Low-Histamine Diet?"
- ⁹ *Front Microbiol.* 2023 May 12;14:1196239, The interest on fermented foods is increasing
- ¹⁰ *European Journal of Clinical Nutrition* volume 78, pages 726–731 (2024), Discussion
- ¹¹ StatPearls [Internet]. Vitamin C (Ascorbic Acid)
- ¹² *Nutrients.* 2021 Sep 15;13(9):3207, Principles of Treatment for Histamine Intolerance
- ¹³ *Inflammopharmacology.* 2023 Feb 27;31(2):653–672, The possible bronchodilatory effect

- ¹⁴ Journal of Chemistry, "Imidazole: Having Versatile Biological Activities" Abstract
- ¹⁵ Curr Pediatr Rep 12, 35–43 (2024), Vitamin C and Immunity
- ¹⁶ National Center for Complementary and Integrative Health, Turmeric
- ¹⁷ International Journal of Research in Medical Sciences, 10(7), 1545–1548, Abstract
- ¹⁸ Cleveland Clinic, "Allergic Rhinitis (Hay Fever)"
- ^{19, 21, 22} YouTube, Dr. Jin W. Sung May 10, 2022
- ²⁰ Biomedicine & Pharmacotherapy Volume 156, December 2022, 113945, Quercetin
- ²³ Pharmacogn Rev. 2016 Jul-Dec; 10(20): 84–89, Quercetin
- ²⁴ Journal of Cleaner Production Volume 231, 10 September 2019, Pages 1192-1199, Introduction