



## QUERCETIN + NETTLES

NATURAL SUPPORT FOR HEALTHY IMMUNE AND INFLAMMATORY RESPONSES

90 VEGETARIAN CAPSULES | NPN80046123 | QUN090-CN

**Quercetin + Nettles** provides 600 mg quercetin and 600 mg nettles per three-capsule serving. This targeted and highly impactful combination of ingredients may help modulate inflammatory and immune responses in conditions that have an inflammatory etiopathology such as allergic rhinitis, asthma, eosinophilia, inflammatory bowel diseases, osteoarthritis, obesity, type II diabetes, and even certain cancers.<sup>1-5</sup> Research suggests that both nettle's and quercetin's anti-inflammatory, antioxidant, and antiviral properties are attributed to their ability to interrupt the production and actions of pro-inflammatory mediators such as cytokines, leukotrienes, prostaglandins, and interleukins.<sup>5-9</sup>

Quercetin, also known as the “king of the flavonoids”, is considered to be among the top plant-based polyphenolic compounds due to its powerful antioxidant properties and its ability to support a healthy inflammatory response in the body. Quercetin is a potent flavonol found in many foods that are recognized for their health benefits, such as red onions, apples, olive oil, dark berries and grapes, capers, broccoli, salad greens and culinary herbs such as dill, cilantro, watercress, and radicchio.<sup>6</sup> (This phytochemical contributes to the richly-coloured pigments in these foods.) Novel genome research has found that upon binding to DNA or other genome-associated proteins, quercetin assumes the role of a cis-regulatory transcription factor for genetic expressions that are involved in the cell cycle, differentiation, and development.<sup>10</sup> Moreover, this polyphenolic compound also demonstrates an ability to aid in the attenuation of lipid peroxidation, capillary permeability, and platelet aggregation.<sup>4</sup>

The stinging nettle plant (*Urtica dioica L.*) has traditionally been used as a folk medicine remedy for supporting respiratory and joint health and various other applications, such as with hypertension, throughout the world.<sup>11</sup> Documentation points to its use in ancient Egypt, ancient Greece, and among indigenous peoples of North America, and can be consumed directly or made into soups, tea, and even brewed into beer. Nettle has a very high content of vitamin C and iron which underlies its role in the immune response as a potent antioxidant, anti-inflammatory, and anti-histaminic agent.<sup>12</sup>

### Support for Seasonal Allergies & Respiratory Health

These two plant extracts are significant for supporting the immune system and the body's natural inflammatory response upon exposure to environmental allergens. When exposed to these

allergens, quercetin is known to inhibit histamine release from basophils and mast cell (MC) degranulation.<sup>5</sup> Histamine is the compound responsible for many of the unpleasant symptoms associated with allergies and seasonal upper respiratory challenges. Though they can perform beneficial roles in host defense, MCs are implicated in the pathogenesis of allergies and other inflammatory diseases, as they have the ability to release chemical pro-inflammatory compounds such as lipid mediators, cytokines, and chemokines that are contained in the granules.<sup>5</sup> Similar to quercetin, nettle also has natural anti-histamine effects. However, unlike many over-the-counter choices to regulate histamine levels, the phytoconstituents of these plant extracts do not cross the blood-brain-barrier, thus it is unlikely to cause the drowsiness or other adverse events associated with common OTC medications and can be taken at any time during the day.<sup>13</sup>

In an *in vivo* animal study, *Urtica dioica* L. extract effectively inhibited inflammatory cell recruitment via significantly suppressing eosinophilia increases in bronchoalveolar lavage fluid, levels of leukocytes and lymphocytes in the serum, and significantly reducing allergen-induced lipid peroxidation in lung tissue among asthmatic-induced rat models.<sup>14</sup> Nettle leaf extract was shown *in vitro* to reduce allergic and inflammatory responses via its antagonistic effect against the key receptors and enzymes involved in pro-inflammatory pathways: histamine-1 (H1) receptor, mast cell tryptase, COX-1, COX-2, and hematopoietic prostaglandin D(2) synthase, preventing the degranulation and release of pro-inflammatory mediators, such as prostaglandins, that cause hay fever symptoms and are associated with allergic rhinitis.<sup>8</sup> In a randomized controlled trial of patients diagnosed with allergic rhinitis, *Urtica dioica* root extract supplementation for one month significantly improved clinical symptom severity, significantly reduced nasal eosinophil count, as well as reduced IFN-gamma levels compared to controls.<sup>15</sup>

Quercetin can help improve T-regulatory helper cell (i.e., Th1/Th2) balance and arrest antigen-specific IgE antibody formation.<sup>6</sup> In an animal model, quercetin significantly reduced epithelial thickness, goblet, and mast cell numbers, IgE levels, and immunohistochemical markers compared to untreated mice with allergic airway inflammation.<sup>16</sup> Quercetin has an inhibitory effect on histidine decarboxylase (HDC) mRNA transcription, which is the enzymes responsible for catalyzing the synthesis of histamine from histidine and suppresses IL-6 release by human mast cells, which may help resolve in part inflammatory conditions.<sup>5</sup> Furthermore, quercetin interacts with several of the protein kinase enzymatic reactions (e.g., displacing ATP binding from PI3K and activating AMP-activated protein kinase), which is shown to exert anti-cancer and anti-inflammatory effects.<sup>5</sup> A review elucidates how the properties of quercetin are effective for late-phase bronchial asthma responses, allergic rhinitis, and peanut-induced anaphylaxis, and that quercetin is more efficient in inhibiting interleukins 6 and 8 than anti-allergy drugs.<sup>6</sup>

#### **Medicinal Ingredients (per capsule):**

Quercetin.....200 mg  
Nettle (*Urtica dioica*).....200 mg

**Non-Medicinal Ingredients:** Microcrystalline cellulose, hypromellose, silicon dioxide, stearic acid (vegetable source). **Recommended Dose:** Adults: Take 3 capsules per day with meals, or as directed by your health care practitioner. For use beyond 12 weeks, consult a health care practitioner.

#### REFERENCES

For a list of references cited in this document, please visit: [http://catalog.designsforhealth.com/assets/itemresources/Quercetin\\_+\\_Nettles\\_References.pdf](http://catalog.designsforhealth.com/assets/itemresources/Quercetin_+_Nettles_References.pdf)