

## Advances in Management of High Blood Pressure Through Food Supplements: Exploring Value - Added Products from Wild Lettuce

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High blood pressure, or hypertension, affects millions worldwide and is a major risk factor for cardiovascular diseases. While conventional medications remain the cornerstone of treatment, there is growing interest in complementary approaches, including food supplements derived from natural sources. This article explores recent advances in managing hypertension through dietary supplements and highlights the potential of value-added products from wild lettuce (*Lactuca serriola* and related species), an underutilized plant with promising pharmacological properties. Hypertension is characterized by persistently elevated blood pressure, often due to vascular stiffness, inflammation, or imbalances in electrolytes. Lifestyle modifications, including diet, are recommended alongside pharmacotherapy. Evidence-based supplements that show modest blood pressure-lowering effects include potassium, magnesium, coenzyme Q10, fish oils, garlic, and vitamin C. These work through mechanisms such as vasodilation, antioxidant activity, and inhibition of angiotensin-converting enzyme (ACE).

### Wild Lettuce: Botanical Profile and Traditional Uses

Wild lettuce, traditionally used in folk medicine, is gaining attention for its vasorelaxant and antispasmodic properties, which may indirectly support blood pressure management by promoting vascular relaxation and reducing stress-related elevations. Wild lettuce, primarily *Lactuca serriola* (prickly lettuce) and *Lactuca virosa*, is a biennial herb in the Asteraceae family. It produces a milky latex called lactucarium, rich in sesquiterpene lactones like lactucin and lactucopicrin. Historically, lactucarium was used as a mild sedative and analgesic, often called "lettuce opium" for its calming effects without the addictive potential of true opium. In traditional systems, including Unani and Ayurvedic medicine, wild lettuce has been employed for respiratory, gastrointestinal, and vascular ailments. Studies have demonstrated its vasorelaxant effects on isolated blood vessels, comparable to calcium channel blockers, and its ability to relax smooth muscle in bronchioles and intestines. Preclinical studies on *Lactuca serriola* extracts reveal concentration-dependent relaxation of vascular tissue, suggesting potential antihypertensive activity through muscarinic receptor antagonism and calcium channel blockade. Related species, such as African wild lettuce (*Lactuca taraxacifolia*), exhibit ACE-inhibitory and antioxidant properties, which are key targets in hypertension management. Wild lettuce diuretic, anti-inflammatory, and sedative actions align with holistic blood pressure control.



Sedation reduces sympathetic nervous system activity, a common driver of elevated blood pressure, while vasorelaxation may improve endothelial function.



### Nutritional Composition

Parameter	Value (per 100g)
Energy	15 - 20 kcal
Moisture	92 - 94 g
Protein	1.2 - 1.5 g
Total Carbohydrates	2.5 - 3.2 g
Dietary Fiber	1.1 - 1.8 g
Total Fat	0.2 - 0.3 g
Ash	0.8 - 1.2 g
Vitamin A	450 - 600 $\mu$ g RAE
Vitamin C	8 - 12 mg
Vitamin K	100 - 140 $\mu$ g
Folate (B9)	35 - 45 $\mu$ g
Calcium	30 - 50 mg
Iron	0.8 - 1.2 mg
Potassium	200 - 250 mg
Magnesium	12 - 18 mg

### Value-Added Products from Wild Lettuce

Transforming wild lettuce into value-added products enhances its accessibility and standardization, addressing challenges like seasonal availability and variable potency. Common products include:

- **Extracts and Tinctures:** Concentrated lactucarium or leaf extracts, often in capsule or liquid form, standardized for sesquiterpene content. These are marketed for relaxation and mild pain relief, with potential indirect benefits for stress-induced hypertension.
- **Powders and Capsules:** Dried aerial parts processed into supplements, providing a convenient delivery method.



- Teas and Infusions: Herbal teas from organic wild lettuce leaves for daily consumption.
  - Seed Oils: Extracted from lettuce seeds, rich in nutrients and used topically or internally.
- These products leverage modern extraction techniques to preserve bioactive compounds, making wild lettuce a sustainable source for nutraceuticals. Commercial examples include high-potency 10:1 extracts, ensuring consistent dosing.

### **Safety and Considerations**

Wild lettuce supplements are generally well-tolerated in moderate doses but may cause sedation or allergic reactions in sensitive individuals. They should not replace prescribed antihypertensive medications. Consultation with a healthcare provider is essential, especially for those on sedatives or with pre-existing conditions.

### **Conclusion**

Advances in hypertension management increasingly incorporate natural supplements for adjunctive support. Value-added products from wild lettuce offer a promising avenue, backed by traditional use and emerging pharmacological evidence for vasorelaxation and calming effects. As research progresses, these botanicals could play a greater role in integrative approaches to blood pressure control. Embracing underutilized plants like wild lettuce not only promotes sustainability but also bridges ancient wisdom with modern health needs.