Unique New Formula Derived From Nature's Herbs and Spices

This antioxidant formula is a unique whole food formula derived from nature’s Herbs and Spices “HS”. These ingredients were chosen due to their water soluble (hydrosoluble - HS) nature making them great for protecting non lipid structures of the body such as proteins and enzymes. This formula is ideally used along with Ultimate Antioxidant - LS - LipoSoluble Fraction since the LS ingredients in the gel cap are better at protecting body lipids such as cell membranes and LDL cholesterol. Curcumin C3 complex is the best curcumin source available. GinkgoSelect™ Phytosome™ was chosen for this formula because of research that proves enhanced absorption due to the phospholipid carrier bound to the Ginkgo herb.

Lipid soluble curcumin from turmeric was included because research shows this antioxidant works synergistically with water soluble antioxidants such as Vitamin C. (see research study #1 below)

Research Abstracts

- Curcumin works synergistically with water-soluble antioxidants such as Vitamin C.
  1. How curcumin works preferentially with water soluble antioxidants.
     “Our results show that the initially generated beta-oxo-alkyl transforms rapidly, probably via an intramolecular H-atom shift, into the phenoxy-type curcumin radical. This phenoxy does not react with oxygen, k < 10(5) M(-1) s(-1), and can be repaired by any water-soluble antioxidant with appropriate redox potential, E(6) < 0.83 V, for example, with vitamin C, k = (6 +/- 1) x 10(6) M(-1) s(-1). A molecular mechanism of cancer chemoprevention by curcumin is proposed, with special emphasis on the synergism with water-soluble antioxidants.”

- Curcumin from turmeric protects against several free radicals.
  2. Free radical reactions of curcumin in membrane models.
     “Free radical reactions of curcumin, a lipid soluble antioxidant from turmeric (Curcuma longa), have been studied with a variety of oxidants using TX 100 micelle as a model membrane.” “Micellized curcumin reacts with haloperoxyl radicals, superoxide, and lipid peroxyl radicals with rate constants of 5 X 10(3), 4.6 X 10(4), and 5.3 X 10(5) M-1s-1, respectively.”

- Clove and basil protect against the oxygen radical.
  3. Determination of antioxidant activity of herbs by ESR.
     “Water extracts of 32 herbs that are constituents of curry and curry powder were screened for superoxide anion radical (O2.-) scavenging activity. Among the screened samples, only clove, allspice, and basil were shown to decrease DMPO-O2.- adduct yields by more than 50% at 0.25 mg/mL as measured by an ESR spin trapping technique based on the HPX-XOD reaction.” “Clove and basil directly eliminated O2.- like superoxide dismutase (SOD), whereas allspice reduced the amount of O2.- by inhibition of formation of O2.-.”

- One of the major antioxidants in sweet basil is rosemarinic acid
  4. Phenolics composition and antioxidant activity of sweet basil (Ocimum basilicum L.)
     “The major antioxidant compound in fraction IV (extract of Ocimum basilicum L.,sweet basil) was confirmed as rosmarinic. The results showed that one rosmarinic acid can capture 1.52 radicals, and furthermore, the existence of a synergistic effect between alpha-tocopherol and rosmarinic acid was revealed.”
Rosemary compound, rosmarinic acid, protects from lung inflammation and lung edema according to the study below.

5. Rosmarinic acid inhibits lung injury induced by diesel exhaust particles.
   “Epidemiological and experimental studies have suggested that diesel exhaust particles (DEP) may be involved in recent increases in lung diseases. DEP has been shown to generate reactive oxygen species.” “Rosmarinic acid is a naturally occurring polyphenol with antioxidative and anti-inflammatory activities. These results suggest that rosmarinic acid inhibits DEP-induced lung injury by the reduction of proinflammatory molecule expression. Antioxidative activities of rosmarinic acid may also contribute to its protective effects.”

Antioxidants are found in combination in nature. This study proves synergism is stronger than antioxidants taken alone. Ultimate Antiox-HS will work best taken with Ultimate Antiox-LS.

6. Lycopene synergistically inhibits LDL oxidation in combination with vitamin E, glabridin, rosmarinic acid, carnosic acid, or garlic.
   “Several lines of evidence suggest that oxidatively modified low-density lipoprotein (LDL) is atherogenic, and that atherosclerosis can be attenuated by natural antioxidants, which inhibit LDL oxidation. This study was conducted to determine the effect of tomato lycopene alone, or in combination with other natural antioxidants, on LDL oxidation.” “We conclude that lycopene acts synergistically, as an effective antioxidant against LDL oxidation, with several natural antioxidants such as vitamin E, the flavonoid glabridin, the phenolics rosmarinic acid and carnosic acid (both from rosemary), and garlic. These observations suggest a superior antiatherogenic characteristic to a combination of different natural antioxidants over that of an individual one.”

Rutin found in tomato paste was found to inhibit AGE’s.

   “A water-soluble and low-molecular-weight fraction (SB) was obtained from tomato paste. The effects of SB on the formation of advanced glycation end-products (AGE) in protein glycation were studied by the methods of specific fluorescence, ELISA and a Western blot analysis, using the anti-AGE antibody after incubating protein with sugar. SB contained an antioxidant, rutin, which showed potent inhibitory activity. The results also suggest that rutin chiefly contributed to inhibiting the formation of AGE, and that other compounds in SB may also have been related to the activity.”

Garlic shows protection against chemical induced hepatitis in rats.

8. Hepatoprotective effect of allicin on tissue defense system in galactosamine/endotoxin challenged rats.
   J Ethnopharmacol. 2004 Jan;90(1):151-4 Vimal V, Devaki T.
   Allin (diallylthiosulfinate) is the main biologically active component of freshly crushed garlic (Alliaceae Allium sativum Linn.) cloves. It is produced by the interaction of the non-protein amino acid alliin with the enzyme alliinase (alliin lyase, EC 4.4.1.4). In D-galactosamine/lipopolysaccharide (D-GalN/LPS)-induced hepatitis rats, a significant increase of lipid peroxidation and decreased liver antioxidant enzyme levels are observed. Pretreatment with allicin, the active component of freshly crushed garlic cloves, prevented these alterations.

Garlic has been shown to protect against chemotherapy induced cardiotoxicity.

9. Protection against acute adriamycin-induced cardiotoxicity by garlic: Role of endogenous antioxidants and inhibition of TNF-alpha expression.
   “Oxidative stress is the major etiopathological factor in adriamycin-induced cardiotoxicity. Relatively low amounts of endogenous antioxidant makes the heart vulnerable to oxidative stress-induced damage. Chronic oral administration of garlic has been reported to enhance the endogenous antioxidants of heart. Probucol, 250 mg/kg and 500 mg/kg of garlic reduced adriamycin induced TNF-expression in the myocardium and was associated with reduced myocyte injury.

CONCLUSIONS: It is concluded that chronic garlic administration prevents acute adriamycin-induced cardiotoxicity and decreases myocardial TNF-alpha expression.”
Garlic has been shown to prevent gentamicin (antibiotic) induced nephrotoxicity caused by reactive oxygen free radicals.

10. Protective effect of diallyl sulfide on oxidative stress and nephrotoxicity induced by gentamicin in rats.


“Gentamicin (GM) is an antibiotic whose clinical use is limited by its nephrotoxicity. Experimental evidences suggest a role of reactive oxygen species in GM-induced nephrotoxicity. In this work we explored the effect of diallyl sulfide (DAS), a garlic-derived compound with antioxidant properties, on GM-induced nephrotoxicity.” “The mechanism by which DAS has a protective effect on GM-induced nephrotoxicity may be related, at least in part, to the decrease in oxidative stress in renal cortex.”

Active ingredients of herbs such as allspice and clove are strong hydroxyl radical scavengers (as strong as alpha tocopherol) and protect against AGE’s.

11. Spice constituents scavenging free radicals and inhibiting pentosidine formation in a model system.


“Many antioxidants have been found in spices and herbs, and some of them are well known as strong scavengers of active oxygen radicals. We have isolated active products, which markedly inhibited the formation of malondialdehyde (MDA from 2-deoxyribose and the hydroxylation of benzoate with the hydroxyl radical, from methanol extracts of allspice and clove. Pimentol from allspice, and biflorin and its isomer, abbreviated as clove3, from clove were identified as the active principles. These revealed strong activity as hydroxyl radical scavengers at a concentration of 2.0 microM. "The antioxidative activities……….. were as strong as those of alpha-tocopherol." “Such advanced glycation end products (AGE) as pentosidine are biomarkers of diabetes mellitus, and active oxygens have been suggested to be involved in the formation of AGE. The above-mentioned free radical scavengers effectively inhibited the formation of pentosidine in a model system.”

12. Several culinary and medicinal herbs are important sources of dietary antioxidants.


“We assessed the contribution of culinary and medicinal herbs to the total intake of dietary antioxidants. Our results demonstrate that there is more than a 1000-fold difference among antioxidant concentrations of various herbs. Of the dried culinary herbs tested, oregano, sage, peppermint, garden thyme, lemon balm, clove, allspice and cinnamon as well as the Chinese medicinal herbs Cinnamomi cortex and Scutellariae radix all contained very high concentrations of antioxidants (i.e., >75 mmol/100 g).” “In a normal diet, intake of herbs may therefore contribute significantly to the total intake of plant antioxidants, and be an even better source of dietary antioxidants than many other food groups such as fruits, berries, cereals and vegetables.”

13. Antioxidative properties of water extracts obtained from herbs of the species Lamiaceae.


“Very little is known about the possible presence of antioxidants in polar extracts from herbs used in preparation of infusions and decoctions. In this work water extracts of six different herbs of the Lamiaceae family (dittany, lemon balm, mint, sage, sideritis and sweet marjoram) were prepared. The extracts were examined for their effect against lipid oxidation in comparison to a tea water extract. Sweet marjoram, sage and dittany extracts were found to have a remarkable capacity in retarding lipid oxidation.” “The extracts were rich in bound forms of phenolic compounds such as hydroxycinnamic acids and flavonoids.”

Polyphenols with the greatest number of hydroxyl groups make the best antioxidants such as Quercetin.


“It is well known that polyphenols lower the risk of chronic diseases such as heart disease and cancer.” “We examined 13 polyphenols and nine compounds known to be antioxidants. RESULTS: Among the 13 polyphenols, milicetin, with the largest number of hydroxyl groups, had the highest antioxidant activity, followed by cyanidin, pelargonidin and quercetin. It is suggested that the increase in the number of hydroxyl groups induced a higher antioxidant activity.”

Ginkgo biloba is shown to have antioxidant, anti-angiogenic and gene regulatory actions.

15. Ginkgo biloba extracts and cancer: a research area in its infancy.


“Recent studies conducted with various molecular, cellular and whole animal models have revealed that leaf extracts of Ginkgo biloba may have anticancer (chemopreventive) properties that are related to their antioxidant, anti-angiogenic and
gene-regulatory actions. The antioxidant and associated anti-lipoperoxidative effects of Ginkgo extracts appear to involve both their flavonoid and terpenoid constituents."

- **Resveratrol is a powerful antioxidant and anti-inflammatory and may support prostate cancer prevention.**

  **16. Resveratrol—a prostate cancer chemopreventive agent?**
  
  
  “Resveratrol is a plant-derived polyphenolic compound which has a wide spectrum of biological activity. It has anti-oxidant and anti-inflammatory properties, and may induce apoptosis as well as modulate the function of the androgen receptor in prostate cancer cell lines.”

- **Ginkgo biloba protects against mobile phone electromagnetic radiation induced brain damage.**

  **17. Ginkgo biloba prevents mobile phone-induced oxidative stress in rat brain.**
  
  
  “The widespread use of mobile phones (MP) in recent years has raised the research activities in many countries to determine the consequences of exposure to the low-intensity electromagnetic radiation (EMR) of mobile phones.”
  
  “CONCLUSION: Reactive oxygen species may play a role in the mechanism that has been proposed to explain the biological side effects of MP, and Gb prevents the MP-induced oxidative stress to preserve antioxidant enzymes activity in brain tissue.” (Gb= Ginkgo biloba)

- **Effect of acerola cherry extract on cell proliferation and activation of ras signal pathway at the promotion stage of lung tumorigenesis in mice.**
  
  
  “The results suggest that ACE (acerola cherry extract) regulates abnormal cell growth at the promotion stage of lung tumorigenesis in mice treated with NNK as a result of suppression of the initiation stage”

- **Biological activity of barbados cherry (acerola fruits, fruit of Malpighia emarginata DC) extracts and fractions.**
  
  
  “The tumor specific cytotoxic activity and multidrug resistance reversal activity of acerola fruit may suggest its possible application for cancer therapy “

**20. CLEIN NW. Acerola juice, the richest known source of vitamin C; a clinical study in infants.**


**HERB/SPICE MECHANISMS OF ACTION**

<table>
<thead>
<tr>
<th>Herb/Spice</th>
<th>Amount</th>
<th>Action</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acerola (Malpighia glabra) (fruit)</td>
<td>1000 mg</td>
<td>• Antioxidant (AO) due to Vit C and other flavonoids, cytotoxic to tumor cells</td>
<td>18, 19, 20</td>
</tr>
<tr>
<td>Garlic (Allium Satirum) (bulb)</td>
<td>250 mg</td>
<td>• AO, antimicrobial, kidney and liver protection</td>
<td>6, 8, 9, 10</td>
</tr>
<tr>
<td>Curcumin (Turmeric)</td>
<td>100 mg</td>
<td>• AO, anti-inflammatory, synergy with water-soluble AOs</td>
<td>1, 2</td>
</tr>
<tr>
<td>Ginkgo biloba (GinkgoSelect™ Phytosome™)</td>
<td>25 mg</td>
<td>• AO, anti-angiogenic, circulation support</td>
<td>15, 17</td>
</tr>
<tr>
<td>Quercetin</td>
<td>25 mg</td>
<td>• AO, anti-inflammatory</td>
<td>14</td>
</tr>
<tr>
<td>Rutin</td>
<td>25 mg</td>
<td>• AGE’s (advanced glycatlng end-products) inhibition</td>
<td>7</td>
</tr>
<tr>
<td>Clove (Syzygium aromaticum) (buds)</td>
<td>25 mg</td>
<td>• AO, one active ingredient is biflorin scavenges OH radical, removes the O2 radical</td>
<td>3,11, 12</td>
</tr>
<tr>
<td>Allspice (Pimenta dioica) (berries)</td>
<td>25 mg</td>
<td>• AO, one active ingredient is pimentoal scavenges OH radical, inhibits formation of the O2 radical</td>
<td>11, 12</td>
</tr>
<tr>
<td>Sweet Basil (Ocium basilicum) (leaves)</td>
<td>25 mg</td>
<td>• AO, removes the O2 radical</td>
<td>3, 4, 5, 6</td>
</tr>
<tr>
<td>Sage (Salvia officinalis) (leaves)</td>
<td>25 mg</td>
<td>• AO, retards lipid peroxidation</td>
<td>12, 13</td>
</tr>
<tr>
<td>Resveratrol (from Polygonium cuspidatum)</td>
<td>25 mg</td>
<td>• AO, anti-inflammatory, anti-cancer, aromatase inhibitor</td>
<td>16</td>
</tr>
</tbody>
</table>

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