Product Review: *Turmeric and Curcumin Supplements*

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What It Is:
Turmeric is a spice used commonly as a food coloring, flavoring agent, and is a key ingredient in curry powders and mustards. Turmeric is used in Ayurveda (traditional East Indian medicine) for abdominal ailments and arthritis. The dried, powdered roots (or rhizomes) of the plant, *Curcuma longa*, are used medicinally. Most research has focused on compounds in turmeric called curcuminoids and, more specifically, on the compound curcumin, which gives turmeric its orange-yellow color and is the predominant curcuminoid in turmeric. The other two curcuminoids in turmeric are demethoxycurcumin and bisdemethoxycurcumin.

What It Does:
Many uses of turmeric relate to the anti-oxidant or anti-inflammatory activities of curcumin. The anti-inflammatory action might involve blocking cyclooxygenase-2 (COX-2), the target of non-steroidal anti-inflammatory drugs (NSAIDs) like Celebrex (celecoxib) and Motrin (ibuprofen).

Gastrointestinal Uses:
One well designed study found turmeric powder better than placebo for symptoms of *indigestion*. In this study, 116 participants took either a placebo or 500 mg of turmeric four times daily for seven days. Eighty-seven (87%) percent of the people who took turmeric reported improvement compared to 53% of the placebo group (Thamillikitkul, J Med Assoc Thai 1981).

Another well-designed study found that curcumin, in addition to conventional medications, was better than placebo for maintaining remission in people with *ulcerative colitis*. During the six months of this study with 89 participants, those treated with one gram of curcumin twice daily had fewer relapses.
became diabetic, but 19 of 104 subjects receiving a placebo did. Curcumin appeared to boost activity of the insulin-secreting cells in the pancreas. More research is needed to confirm these results in other populations.

A preliminary study found that curcumin given to Alzheimer's disease patients did not significantly improve mental functioning compared to placebo (Baum, J Clin Psychopharm 2008).

Additional clinical studies of turmeric and curcumin in a variety of diseases are ongoing. More information about the clinical evidence for turmeric is available in the Encyclopedia article on this site.

Quality Concerns and What CL Tested for:
Like other supplements, neither the FDA nor any other federal or state agency routinely tests turmeric supplements for quality prior to sale. However, quality issues for turmeric supplements can include the following:

- **Labeled Amount** Does the product really contain the expected amount of turmeric or curcuminoid compounds?
- **Purity** Does the product contain contaminants? Like other supplements made from plant roots, turmeric may be contaminated with heavy metals, such as lead and cadmium. In children, infants, and fetuses, even low levels of lead can adversely affect neurobehavioral development and cognitive function. In adults, lead at somewhat higher levels can cause elevated blood pressure, anemia, and adversely affect the nervous and reproductive systems. Lead is of particular concern during pregnancy as the mother can transfer it to the fetus. Cadmium is a carcinogen and kidney toxin.
- **Ability to Break Apart Properly** Once in your body, will the pill break down properly (disintegrate) so that it can release its contents?

ConsumerLab.com, as part of its mission to independently evaluate products that affect health, wellness, and nutrition, purchased many turmeric or curcumin supplements sold in the U.S. and tested them to determine whether they 1) possessed the claimed and minimum expected amount of curcuminoid compounds, 2) were free of unacceptable levels of lead and cadmium, and 3) if regular tablets, could disintegrate properly in order to release their contents for absorption (see Testing Methods and Passing Score).

What CL Found:
Tests showed that two of the ten turmeric/curcumin supplements that ConsumerLab.com selected for review contained far fewer curcuminoids than listed on their labels. This problem has been reported by ConsumerLab.com with other products in the past. Products lacking the expected curcuminoids were:

- **Advance Physician Formulas Curcumin (Doctor Formulated)** -- Contained only 18.9 mg of curcuminoids per capsule, less than 10% of the amount expected from its label.
- **Paradise Herbs & Essentials Turmeric** -- Contained only 14.7% of the expected curcuminoids, yielding only 18.4 mg per capsule.
<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Expected (M) (^1) Extract or Root Powder</th>
<th>NOT APPROVED (Failed) (See How Products Were Evaluated)</th>
<th>Amount of Curcuminoids</th>
<th>Lead</th>
<th>Bioavailability Enhancer, If Any)(^*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Physician Formulas Curcumin (1 capsule, 1 to 3 per day) Ingredients</td>
<td>Dist. by Advance Physicians Formulas</td>
<td>245 mg [237.5 mg from extract (C) and 7.5 mg from root powder (M)] (^1)</td>
<td>NOT APPROVED Found only 18.9 mg of curcuminoids per capsule (7.7% of claimed and expected min. amount)</td>
<td>✓</td>
<td>$3.44 (based on amount found)</td>
</tr>
<tr>
<td>Doctor's Best Best Curcumin C3 Complex with BioPerine (1 capsule, 1 to 3 per day) Ingredients</td>
<td>Dist. by Doctor's Best, Inc.</td>
<td>500.7 mg (C) Extract</td>
<td>APPROVED</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Doctors Purest Ageless Cures Curcumin C3 Complex (1 vegetarian capsule, 2 to 4 per day) Ingredients</td>
<td>Mfd. by Ageless Cures LLC</td>
<td>475 mg (C) Extract</td>
<td>APPROVED</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Douglas Laboratories Ayur-Curcumin (1 capsule, 1 per day) Ingredients</td>
<td>Mfd. by Douglas Laboratories</td>
<td>270 mg (C) Extract</td>
<td>APPROVED</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>GNC Herbals Plus Standardized Turmeric Curcumin (1 vegetarian capsule, 1 per day) Ingredients</td>
<td>Dist. by General Nutrition Corporation</td>
<td>475 mg (C) Extract</td>
<td>APPROVED</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ingredients</td>
<td>claimed curcuminoids</td>
<td>Price Check</td>
<td>$1.17 (based on amount claimed)</td>
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<tr>
<td><strong>Solgar Turmeric Root Extract (1 capsule, up to 3 per day)</strong>*</td>
<td>APPROVED</td>
<td>✓</td>
<td>✓</td>
<td>$0.25</td>
<td></td>
</tr>
<tr>
<td>Mfd. by Solgar Vitamin and Herb</td>
<td></td>
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<tr>
<td><strong>Swanson Superior Herbs Curcumin Complex (1 capsule, 1 to 2 per day)</strong>*</td>
<td>APPROVED</td>
<td>✓</td>
<td>✓</td>
<td>$0.13 Bioperine</td>
<td></td>
</tr>
<tr>
<td>Dist. by Swanson Health Products</td>
<td></td>
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<tr>
<td><strong>Vitamin Shoppe Standardized Herbs Turmeric Extract (1 capsule, 1 to 2 per day)</strong>*</td>
<td>APPROVED</td>
<td>✓</td>
<td>✓</td>
<td>$0.23</td>
<td></td>
</tr>
<tr>
<td>Dist. by The Vitamin Shoppe</td>
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* Tested through CL’s Voluntary Certification Program prior to, at time of, or after initial posting of this Product Review.
** Products with enhanced bioavailability formulations may permit a lower dose to be used than normal turmeric or curcumin to achieve equivalent blood (plasma) levels. See Bioavailability section in ConsumerTips.

1 Expected minimum curcuminoids in turmeric root powder is 3% (w/w). This minimum is applied if product does not state an amount of curcuminoids from a turmeric-based ingredient or if the claimed amount is lower than the expected minimum.

Unless otherwise noted, information about the products listed above is based on the samples purchased by ConsumerLab.com (CL) for this Product Review. Manufacturers may change ingredients and label information at any time. So be sure to check labels carefully when evaluating the products you use or buy. If a product’s ingredients differ from what is listed above, it may not necessarily be the same as what was tested.

The information contained in this report is based on the compilation and review of information from product labeling and analytic testing. CL applies what it believes to be the most appropriate testing methods and standards. The information in this report does not reflect the opinion or recommendation of CL, its officers or employees. CL cannot assure the accuracy of information provided to it by third parties. Liability to any person for any loss or damage caused by errors, omissions, or inaccuracies in this report is hereby disclaimed.

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ConsumerTips:

**What to Consider When Buying and Using:**
Consumers should look for the following information on turmeric product labels:

- Species of turmeric (look for *Curcuma longa*, although the use of the accepted common name "turmeric" is sufficient to denote this species)
- Part of the plant used (should be "root" or "rhizome")
- Form of turmeric used (e.g., root/rhizome powder or extract)
- Amount of turmeric per pill or dose in grams (g) or milligrams (mg) [1 gram = 1,000 milligrams]
extract containing the compound piperine which inhibits the metabolism of curcumin in the gut and liver (Shoba, Planta Med 1998). Bioperine has been shown to increase the bioavailability of curcumin by 1.5 times and is found in products reviewed such as Doctors Best, Life Extension, and Swanson.

Another more bioavailable ingredient is BCM-95 (Arjuna Natural Extracts, Inc.), which reconstitutes curcumin with other components of turmeric. A small study showed the bioavailability of BCM-95 to be about 7 times that of normal curcumin, and about 6 times that of a curcumin-lecithin-piperine complex (Antony, Indian Jnl Pharma Sciences 2008). BCM-95 is found in both of the Naturally Enhanced Absorption Curcu-Gel products in this review.

A third approach to increasing bioavailability is represented by Meriva (Indena S.p.A.), a proprietary combination of phosphatidylcholine-enriched soy lecithin and curcumin. A study in rats showed a 5-fold increase in bioavailability with Meriva compared to curcumin and an even greater increase in all curcuminoids (Marczylo, Cancer Chemother Pharmacol 2007). A more recent study in humans (Cuomo, J Nat Prod 2011) also suggested increased absorption from Meriva. The small study showed a significant increase in plasma levels of curcumin metabolites -- although not of curcumin itself - from capsules of Meriva compared to capsules containing unformulated curcuminoids.

Concerns and Cautions:

- Single ingredient turmeric products made from the species *Curcuma longa* are believed to be safe at doses as high as eight grams per day of either turmeric or curcumin, although long-term safety studies have not been conducted. Few side effects have been reported beyond nausea, diarrhea and allergic skin reactions.
- Turmeric stimulates the gallbladder and should be avoided by people with gallstones or gallbladder disease. Animal research suggests possible toxicity to the liver when large doses are given for prolonged periods of time.
- Turmeric has anti-platelet activity. Avoid using turmeric while taking blood-thinners.
- The safety of turmeric has not been well evaluated for children or for women who are pregnant or nursing. Therefore, it is not recommended for use by such individuals or by women who have a chance of becoming pregnant.

To further assist consumers, ConsumerLab.com licenses its flask-shaped CL Seal of Approved Quality (see The CL Seal) to manufacturers for use on labels of products that have passed its testing. ConsumerLab.com will periodically re-evaluate these products to ensure their compliance with ConsumerLab.com's standards.

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