

## Safety of Goji/Lycium barbarum

Goji has been traditionally used as a food and as an herbal medicine for over 2,500 years without any specific toxicity. There is no known toxicity reported on goji in the leading scientific database established by US government for worldwide scientific literature among 86 papers<sup>1</sup>, or traditional oriental herbal medicine text books<sup>2-8</sup>. Goji can be sold in the USA as a dietary supplement and is also listed in Herb of Commerce<sup>9</sup> as GRAS (Generally Recognized As Safe). Recently, Dutch authorities<sup>10</sup> and the Food Safety Agent in the UK<sup>11</sup> classified goji as a food, not as a novel food, based upon the long traditional usage without toxicity.



The dried ripe fruits of goji are widely used in China, Korea and Japan for medicinal purposes and as a functional food<sup>12</sup>. The scientific study of goji has a long history and is increasingly attracting experts' attention. Among several ancient articles, in his "Compendium of Medica", Li Shi-zen named *Lycium barbarum* as a top-grade medicinal material that can nourish the liver and kidney, supplement energy, and improve eyesight. "Shennong's Classic of Materia Medica (Shennong Bencaojing)" also mentions that "long term use of goji can contribute to agility and longevity." Goji has been studied in various areas as a traditional Chinese herb, and is found to have bioactivities such as antioxidant, hypoglycemic and immunological activities<sup>13</sup>. The long term usage of goji can contribute to agility and longevity<sup>7</sup>.

The various review articles and textbooks cite such traditional beneficial aspects of goji and do not mention of any toxicity aspects of goji<sup>2-8</sup>. Dr. Subhuti Dharmananda, Director of the Institute for Traditional Medicine (ITM) in Portland, Oregon, USA, an expert in traditional Chinese medicine, reviewed many goji articles and studies including translated Chinese papers, and concluded goji/*Lycium* fruit is not toxic, according to their basic toxicological studies<sup>14</sup>. In fact, LD50 (50% lethal dosage; specific dosage that half of the animals in the test group die) was only found in injection with a very large dosage, 8.3 g/kg body weight, equivalent to around 500g/human<sup>2</sup>, which means it was very safe.

Dr. Dharmananda also mentioned that while goji fruit is not toxic, it is impossible to clear it of the possibility of rare idiosyncratic reactions. A modern-day search of literature through the PubMed website on *lycium barbarum* reveals in fact that goji is mostly used to counteract liver reactions to toxins<sup>15</sup>.

In conclusion, goji is safe to take and no known toxicity has been reported.

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