Gotu Kola Shows Anxiety-Reducing Activity in Clinical Trial


The herb gotu kola (Centella asiatica (L.) Urb., Apiaceae) is mainly found in the marshy areas throughout India, Malaysia, Madagascar and East Africa, in South America and in the southern U.S. Also commonly called Indian pennywort, it has been used in traditional Ayurvedic and Chinese medicine to treat depression and anxiety, among other uses. Experiments with rats have shown that gotu kola alleviates some of the symptoms of anxiety, including the acoustic startle response (ASR). This study is the first known double-blind, placebo-controlled experiment to assess the effects of gotu kola on ASR in healthy human subjects. ASR is a distinct set of physiological responses (like an eye blink) that result from an unexpected external stimulus, such as a loud noise. The response is amplified in fear and anxiety disorders and has been used to investigate these disorders in humans. Using a sensor mounted in a pair of glasses, ASR was tested by measuring eye blinks resulting from a loud noise.

Forty healthy subjects aged 18-45 years were administered a one-time dose of either 12 g gotu kola powder (Nature’s Way of Canada Ltd., Newmarket, Ontario) mixed into 300 ml grape juice or a placebo of 300 ml plain grape juice (1 mg of celery salt was added to both mixtures to match color, taste, and smell). ASR, heart rate, blood pressure, and mood data were recorded at baseline, and at 30, 60, 90, and 120 minutes after ingestion. The startle response was statistically significantly lower 30 and 60 minutes after ingestion of gotu kola compared to placebo, with an effect size of 0.48 and 0.77 respectively, indicating some anti-anxiety activity. There was no difference between placebo and gotu kola treatment for later times or at baseline. Also, there was no difference for heart rate or blood pressure, and no difference in mood response except for self-rated happiness. The authors note, however, that anxious, fearful and nervous mood ratings were low in the subjects at baseline. All treatments were well tolerated with no adverse events.

Although used for thousands of years for its cognitive effects, the mechanism of action of gotu kola is unknown. Active ingredients include asiatic acid, madecassic acid, and asiaticoside, which may interact with cholecystokinin receptors or GABA (gamma-aminobutyric acid) receptors (known to be involved in the pathophysiology of anxiety). The next level of investigation would be clinical trials to assess long-term use of gotu kola.

—Rita N. Schulman, Ph.D.

Extensive Review of Health Benefits of Tea


In this extensive article, the authors review and interpret the large body of research on tea (Camellia sinensis (L.) Kuntze, Theaceae), focusing on its health-promoting properties.

In recent years, scientists have performed much research on the health benefits of substances found in foods of plant origin, including tea. Attention has focused on polyphenols, especially the catechin flavonoids, which are potent antioxidants that may protect cells from damage caused by reactive oxygen species (ROS). Tea is the best dietary source of this class of very active flavonoids.

Tea contains many different catechins, as well as flavonols, methylxanthines, organic acids, and other chemical constituents. The composition of tea, particularly unfermented green tea, is now well known, but “knowledge about the digestion, absorption and metabolism of tea by humans is at its infancy,” the authors say.

The authors discuss the anti-cancer effects of tea in detail, writing, “It is evident that tea polyphenols exhibit many protective activities and different metabolic pathways are involved. They act as antioxidants, they selectively inhibit specific enzyme activities, they target and repair DNA aberrations.” Some tea components appear to act synergistically, producing even stronger protective effects when administered together than the effects of their individual activities added together.

In vivo animal studies indicate that tea inhibits many types of cancer, including skin, lung, and digestive tract cancers. Human studies of tea consumption and cancer risk are difficult to conduct and interpret because human diets are complex and are constantly changing. In epidemiological studies, “the confounding factors are generally more variable than the effect tested, and the results are not conclusive,” the authors say. However, some cohort studies suggested that green tea may protect against colon, stomach, pancreatic, bladder, and esophageal cancers.

The authors also describe the mechanisms by which tea components appear to inhibit cardiovascular disease (CVD) development. Several substances in tea interfere with the process of lipoprotein oxidation, thereby limiting a key step in the development of atherosclerosis. Further, tea catechins and rutin have anti-inflammatory effects that may inhibit atherosclerosis, now recognized as an