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File: ■ Ashwagandha (*Withania somnifera*)
■ Pain
■ Inflammation

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RE: Ashwagandha Extract Relieves Acute Thermal Pain in Human Subjects

Usharani P, Nalini P, Manjunath N K, SunilKumarReddy K. Evaluation of the analgesic activity of standardized aqueous extract of *Withania somnifera* in healthy human volunteers using Hot Air Pain Model. *Research Journal of Life Sciences*. May 2013;1(2):1-6.

In health care, pain management may present challenges. Pain medications such as non-steroidal anti-inflammatory drugs (NSAIDs), although effective, cause a diverse array of adverse side effects (ASEs). Among its many applications, ashwagandha (*Withania somnifera*) is used in Ayurvedic medicine for treating painful conditions such as osteoarthritis and rheumatism. Clinical and in vivo studies have shown this botanical to have anti-inflammatory activity. This randomized, double-blind, placebo-controlled, crossover study investigated whether ashwagandha aqueous extract consumption alleviates pain in subjects using a hot air analgesiometer, an instrument that delivers consistent, superficial thermal pain.

The study took place at Nizam's Institute of Medical Sciences, Hyderabad, India. Potential subjects were enrolled based on physical and clinical examinations, as well as medical history. Blood parameters were used to assess normal organ function, and subjects were familiarized with the pain evaluation technique before the study began. Male subjects from 18-40 years old with a body mass index (BMI) ranging from 19.5-25.9 kg/m^2 were included. Subjects were not allowed to use pain medication, anti-inflammatory drugs, or fever-reducing medications within 2 weeks prior to the study. If subjects had general health problems (including drug abuse), had abnormal lab tests, or consumed antioxidants or over-the-counter medications in the prior 2 weeks or "investigational" drugs within 3 months prior to the study, they were excluded.

Treatment consisted of 2 capsules of 500 mg each of SENSORIL® (Natreon, Inc.; New Brunswick, New Jersey) or 2 capsules of placebo. SENSORIL consisted of a water extract of ashwagandha and included approximately 15.7% withanolide glycosides (thought to be the bioactive compounds), 40.2% oligosaccharides, and 0.24% withaferin-A. Placebo content was not described. On study days, subjects arrived at the study

location in the morning, were given a light breakfast, and were instructed to sit for 30 minutes before the study's start.

Subjects were then blindfolded and inserted their non-dominant arm into the hot air analgesiometer. After the heat was turned on and pain was sensed, subjects raised a finger on the other hand, and the procedure was stopped. Pain threshold was calculated as time in seconds from the initiation of the procedure to pain detection, and this test was repeated with 5 minute intervals 3 times total. Following these tests, treatment was randomly administered (either SENSORIL or placebo), and subjects remained sitting upright for 2 hours or more. After 3 hours, the pain test was administered again and laboratory parameters analyzed. This study day was conducted again with the alternate treatment after 2 weeks of washout. [Note: The text gives the washout period as 2 weeks; however, the abstract says the washout time period was 10-14 days.] Subjects were instructed to mention any ASEs.

In total, of the 14 subjects recruited, 2 were excluded due to elevated liver function results at screening, with 12 subjects completing the study. Average age of the subjects was 35.28 ± 3.31 years; average subject BMI was 21.33 ± 1.012 kg/m^2. Following the consumption of ashwagandha, the pain threshold was increased significantly from 43.99 ± 6.79 seconds to 49.89 ± 7.07 seconds ($P<0.001$). In contrast, after placebo, pain threshold increased from 43.79 ± 6.19 seconds to 44.28 ± 9.19 seconds. The amount of increase in pain threshold after ashwagandha consumption was significantly greater than that following the placebo (12.85% vs. 0.4%, $P<0.001$). It is stated that compliance was "excellent," and no abnormalities were detected in laboratory parameters.

This study shows that the ashwagandha product SENSORIL was effective in extending the pain threshold for the particular acute thermal pain model used here. It is suggested that the bioactivity observed in other clinical studies with this botanical for treating chronic pain may be due to anti-inflammatory activity. Future studies need to confirm these findings and focus on this outcome of providing long-term pain relief safely.

—Amy C. Keller, PhD