

Study shows mango consumption has positive impact on inflammatory bowel disease

July 31 2017, by Paul Schattenberg



The study by Dr. Susanne Talcott and her team showed mango consumption could be a useful adjuvant treatment for individuals with inflammatory bowel disease. Credit: Texas A&M AgriLife Research photo

Initial results of a study by researchers in the department of nutrition and food science at Texas A&M University in College Station show mango consumption has a positive impact on people with inflammatory bowel

disease.

Dr. Susanne Talcott, Texas A&M AgriLife Research scientist, and others recently investigated the use of fresh mangoes as an adjuvant to conventional therapy in mild to moderate inflammatory bowel disease.

"Inflammatory bowel disease presents a major risk factor for colon cancer with the most common forms of this disorder being Crohn's disease and [ulcerative colitis](#)," Talcott said. "Previous studies indicate that IBD affects about 1.5 million individuals in the U.S., about 2.2 million in Europe and many more in other countries."

The American Cancer Society estimated in 2016 there were 134,490 new cases of colorectal cancer in the U.S. and these were responsible for 49,190 deaths.

"Colorectal cancer can develop from precursor lesions that can be caused by inflammatory bowel disease over periods of 10 to 15 years, which provides an extended time for preventive measures," she said.

Talcott said multiple studies have demonstrated the health benefits of secondary plant compounds in fruits and vegetables including pomegranate, citrus and curcuminoids, and polyphenolics have been found to reduce inflammatory processes in chronic diseases such as cardiovascular disease, cancer and inflammatory bowel diseases.

"However, few human clinical studies using polyphenolics in the treatment of inflammatory bowel disease have been conducted," she said.

Mangos are rich in gallotannins, a group of large molecular polyphenols that can be broken down to small, absorbable, bioactive molecules by certain intestinal bacteria.

To investigate the impact of mango polyphenolics on humans, Talcott's team, which included husband Dr. Stephen Alcott, also an AgriLife Research scientist, designed a clinical trial conducted at Texas A&M. Trial subjects were recruited in the College Station area and at the Ertan Digestive Disease Center at the Memorial Hermann Hospital in Houston under the direction of Dr. Andrew Dupont, MD.

The study was designed as a controlled clinical pilot trial in subjects with mild-to-moderate active Crohn's disease or mild-to-moderate ulcerative colitis. Subjects ate mango as an adjunct to their common drug treatment for mild-to-moderate IBD.

Male and female individuals from 18 to 79 years old with Crohn's disease or ulcerative colitis were enrolled in the study. Those included were individuals undergoing current or previous IBD drug treatment within the past six months and those on a stable drug regimen for at least three weeks before the start of the treatment phase of the study.

Excluded from the study were those with chronic health conditions or recurrent hospitalizations, as well as those who smoked more than one pack of cigarettes per week, had a current liver or renal dysfunction, were pregnant or lactating or had a known lactose intolerance, gluten sensitivity or celiac disease. Also excluded were those with planned or scheduled IBD-related surgery, current IBD-related intestinal stricture, current infection with *C. difficile* or a previous bowel resection.

Medical personnel evaluated more than 300 subjects for the study based on medical records or surveys. Twenty subjects participated in some aspect of the study, including the screening, with 14 completing the study.

Subjects were provided with and asked to include 200-400 grams of commercially available frozen mangos of the Keitt variety in their daily

diet. They were asked to increase their mango consumption slowly over the first week.

"Since the tolerability of large amounts of fiber-rich fruit varies between subjects and for each patient over time, this study allowed subjects to consume mango within a range rather than a fixed amount," Talcott said. "This range was from 200 grams twice daily to 400 grams three times a day."

She said subjects could skip their mango consumption or reduce it to accommodate any possible digestive issues, but were required to document their daily mango intake. Subjects who underwent an endoscopy before the beginning of this study were asked to wait at least one week before the study treatment could be started. The treatment phase of the study was eight weeks.

"Despite a relatively small subject number, this study yielded significant findings and several biomarkers would have been significantly reduced with a higher number of subjects," Talcott said.

She said symptoms of ulcerative colitis were significantly reduced in the test subjects and several biomarkers associated with inflammation were decreased after eight weeks of mango consumption. Additionally, the presence of GRO, a molecule associated with colon cancer growth, was significantly reduced.

"Intestinal Lactobacilli and other beneficial probiotic bacteria were significantly increased after the consumption of mango as were certain short-chain fatty acids essential for a healthy intact intestinal tract," she said.

Talcott said high endotoxin levels are not only associated with intestinal inflammation but also with other chronic inflammatory diseases, but

after eight weeks of mango consumption, high endotoxin levels in blood plasma were significantly decreased.

"Taken together, our results indicate mango intake exerted beneficial effects in the progression and severity of the IBD after eight weeks of nutritional intervention," she said.

She noted mango consumption might also mitigate inflammation in part by improving the composition of the intestinal microbiota and decreasing the serum endotoxin level.

"All subjects who completed the study stated they would continue to consume mangoes regularly and will recommend this to others who suffer from IBD and also tell their physicians," Talcott said.

She said if mango or any other polyphenolic-rich food can be identified as helpful in shortening or reducing severity of episodes of [inflammatory bowel disease](#), the addition of [mango](#) polyphenolics to conventional IBD drug treatment could have a significant positive impact on public health.

Provided by Texas A&M University

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