



Botanical Adulterants Prevention Program Publishes Turmeric Laboratory Guidance Document

New publication evaluates methods to authenticate turmeric products and describes adulteration.

AUSTIN, TEXAS, USA, April 1, 2020 /EINPresswire.com/ -- The ABC-AHP-NCNPR Botanical Adulterants Prevention Program (BAPP) announces the publication of a [new Laboratory Guidance Document \(LGD\) on turmeric \(*Curcuma longa*\)](#) raw material and products.

Turmeric has a long history of use as a spice and medicinal plant, but its popularity has only recently started to surge for its medicinal properties in countries outside Asia. In 2018, turmeric dietary supplements ranked second and third in sales in the US natural food store and mainstream retail outlet channels, respectively, according to the annual Herb Market Report for 2018 published in HerbalGram, the peer-reviewed journal of the American Botanical Council (ABC).

Reports of turmeric adulteration often describe substitution with other *Curcuma* species or the undeclared admixture of starches or dyes. More recently, the addition of undeclared synthetic curcumin, one of the naturally occurring substances in turmeric, and mixtures of synthetic curcuminoids to turmeric extracts, has been reported. Synthetic curcuminoids can be made for about one-third of the cost of natural curcuminoids, providing a financial incentive to fraudulent suppliers for diluting or replacing turmeric extracts with synthetic materials.

The new LGD is written by John H. Cardellina II, PhD, a noted expert in natural products chemistry and analysis. The LGD provides an evaluation of the usefulness of published analytical methods to detect the adulteration of turmeric root/rhizome raw material and extracts, and finished turmeric products, and summarizes the main advantages and disadvantages of each method regarding its suitability for use in a quality control laboratory. In addition, the document details the chemical composition of turmeric root and rhizome, potential confounding species, and known adulterants. The LGD has been peer-reviewed by 29 international experts from academia, third-party contract analytical laboratories, and the herbal dietary supplement and herb and spice industries. BAPP previously published a [Botanical Adulterants Prevention Bulletin on turmeric](#) in May 2018.

Stefan Gafner, PhD, chief science officer of ABC and technical director of BAPP, explained: "Because adulteration of turmeric comes in various shapes and forms, a number of orthogonal methods (i.e., multiple methods that can measure different analytes in a sample) are needed to ensure that the turmeric ingredient is authentic. Chromatographic methods may be useful for the detection of other *Curcuma* species or certain pigments, but they may miss the undeclared admixture of starches or the presence of lead chromate, which is sometimes added to impart a stronger yellow color. The possible addition of synthetic curcuminoids presents yet another analytical challenge. As such, we hope that the turmeric LGD will provide a useful guide for industry quality control analysts tasked to select the most appropriate assays for turmeric authentication."

Mark Blumenthal, ABC founder and executive director, and BAPP founder and director, said: "Once again, BAPP has identified a common spice that has a growing public demand for its

medicinal properties, and which unscrupulous sellers in the international herb market have adulterated with lower-cost adulterants and fraudulent materials. BAPP's newest LGD on turmeric will be a much-needed beneficial resource for hundreds of industry, university, third-party, and government analytical laboratories around the world."

Cardellina opined: "The adulteration of turmeric is one of the more complex cases that BAPP has tackled. Synthetic organic and inorganic colorants used to improve the color of poor grade or fraudulent raw material present serious health and safety concerns, while substituting or admixing with other species of *Curcuma* deprives consumers of the beneficial compounds provided by *C. longa*. The addition of synthetic curcuminoids can create safety issues due to the possible presence of reagents and side products from the synthetic methods used. Fortunately, this LGD reviews a substantial number of analytical methods to address these many forms of adulteration."

The turmeric LGD is the 10th publication in the series of LGDs published by BAPP. As with all publications in the program (currently 57), LGDs are freely accessible to all ABC members, registered users of the ABC website, and all members of the public on [the program's website](#) (registration required).

About the ABC-AHP-NCNPR Botanical Adulterants Prevention Program

The ABC-American Herbal Pharmacopoeia (AHP)-National Center for Natural Products Research at the University of Mississippi (NCNPR) Botanical Adulterants Prevention Program is an international consortium of nonprofit professional organizations, analytical laboratories, research centers, industry trade associations, industry members, and other parties with interest in herbs and medicinal plants. The program advises industry, researchers, health professionals, government agencies, the media, and the public about various challenges related to adulterated botanical ingredients sold in commerce. To date, more than 200 US and international parties have financially supported or otherwise endorsed the program.

The program has produced 57 extensively peer-reviewed publications, including HerbalGram articles, Botanical Adulterants Prevention Bulletins, LGDs, and Botanical Adulterants Monitor e-newsletters.

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