

24TH BIOTECHNOLOGY CONGRESS: RESEARCH & INNOVATIONS

Annual Congress on & CRISPR CAS9 TECHNOLOGY AND GENETIC ENGINEERING

October 24-25, 2018 | Boston, USA

Detection of adulteration/substitution in herbal market samples

Priya A

University of Delhi, India

Medicinal plants are the basic raw materials for herbal market samples which are available either in the form of raw or powdered forms or sometimes either in processed forms such as capsules, tablets, tinctures etc. Of approximately 17,000-18,000 species of flowering plants existing in India, 6,000-7,000 are used in alternative or traditional systems of medicine. Only 960 of these are used in trade, of which 178 are actively traded. Due to the unrestricted collection of these medicinal plants, most of their populations are declining and instances of substitution/adulteration by look-alike substitutes have increased. Thus, it becomes essential to authenticate herbal market samples, which is difficult to validate using the contemporary taxonomic methods. DNA barcoding, a novel technology, that uses simple molecular tools can identify such materials even if they are fragmented or available in small quantity. In the present investigation, Internal Transcribed Spacer 2 (ITS2), because of its ease of amplification from degraded samples and sufficient informative sites despite its short length, was tested as a barcode for authentication of herbal market samples. The availability of barcode quality ITS2 sequences was checked on NCBI. Of the 960 lists of medicinal plants of India, ITS2 sequences of 172 were available. A reference barcode library of these species was prepared. 160 herbal market samples belonging to 50 of these species were procured from various markets. The amplification and sequencing success rates from these samples were 80.6% and 68.1%, respectively. In the ML tree based on 109 ITS2 herbal sample sequences, 46 samples belonging to 32 species could be authenticated unambiguously. For the remaining samples, a BLAST search was performed on NCBI GenBank, which assigned seven more samples belonging to four species correctly. The identity of the remaining samples could not be deciphered unambiguously.

Biography

Akanksha Priya planned and executed the experiment. She has expertise in the field of molecular biology. Alka Sinha helped in the collection of herbal samples and writing of the manuscript. The work was performed under the guidance of Professor Girish Kumar Sinha.

priya.akanksha20@gmail.com

Notes: