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Authentication of *Cordyceps sinesis* and other counterfeit species by two-dimensional gel electrophoresis

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Cordyceps sinensis, also known as "Dong Chong Xia Chao", has been deemed as the cornerstone of Chinese materia medica (CMM) for centuries. It is a composite CMM consisting of stromata of fungus parasitized on subterranean caterpillar or fruiting bodies of truffles. It is one of the most expensive and the rarest ingredients for use as food supplement due to its increasing demand but declining yield. People nowadays intend to falsify *Cordyceps sinensis* with some common counterfeit species with similar morphological features, such as *Cordyceps militaris, Cordyceps hawkesii* and *Metacordyceps taii*, threatening the quality and safety of however as of today, not many techniques in the market authenticate *Cordyceps sinensis*. It is thus essential to develop a new and effective method to authenticate *Cordyceps sinensis* from those counterfeit species, especially when the ingredients in the food supplement have been grounded into powder or as an extracted form, where proteomics could be one of the alternatives. This is the first study to develop an optimized protocol for extracting proteins from *Cordyceps sinensis*; and to evaluate the proteins extracted from the counterfeits of *Cordyceps* using two-dimensional (2-D) gel electrophoresis. Results of this study indicate that extraction using lysis buffer only obtained the best yield of protein extracted from *Cordyceps sinensis*, and 2-D gel electrophoresis can be used for authentication of *Cordyceps sinesis* and its counterfeits species. Findings of this study can warrant further investigations on the identification of biomarker of *Cordyceps* species using analytical techniques such as matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS).

Biography

Eric Tung-Po Sze is an Assistant Professor since August 2013 at Open University of Hong Kong (OUHK), while maintaining as an Adjunct Faculty in Department of Chemistry, Chinese University of Hong Kong. He has his specialties and research interests in Analytical Chemistry, Laboratory Management, Chemical Metrology, Chinese Medicines, Environmental Science and Development of Novel Foods and Supplements, etc.

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