EVALUATING EXTRACTION TECHNIQUES FOR EXAMINATION OF SPICES AND MEDICINAL HERBS

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Spices and spice-derived compounds have been used for medicinal purposes for thousands of years. While there is evidence of medicinal plants being used up to 5000 years ago, comprehensive documentation didn't surface until around the 16th century. In 1596 one of the first “herbal guides” was published, written by Li Shih Chen (published posthumously), ‘Pen Ts’ao’, outlining the medicinal uses and purposes of different plants and spices. Other more common drugs, still used to this day, also originated from plants; Some of these include cocaine, derived from the Coca Plant (*Erythroxylum coca*), or opium from the Opium poppy (*Papavar somniferum*), and even Marijuana from the Hemp Plant (*Cannabis sativa*). Understanding the chemistry and pharmacological impacts of these spices and plants will not only help us understand how these natural medications were used throughout history but also lead to a more comprehensive understanding on drug use, drug availability, and bioactive molecular analysis.

For our project, we tested commercially available herbs and plants: Curry, Turmeric, Ginger and Kratom. Different qualitative and quantitative extraction methods were employed to test extraction efficiency of bioactive molecules found in these spices and medicinal herbs. While we were able to identify a few bioactive molecules including Piperine in Curry, Sitosterol in Turmeric, and Gingerol in Ginger, we found the concentrations to be very small.