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Quantification and Stability of Soybean Phytoestrogens by HPLC

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Soybeans and soy based foods are good sources for isoflavones. Diets rich in isoflavones are thought to lower the risk for certain diseases, including cancer (breast and prostate), hormone replacement therapy and coronary heart disease. The occurrence of these diseases is much lower in Asian countries, where soy consumption is high compared to that in Western countries. The proposed benefits can be achieved by taking isoflavone-rich dietary supplements. A variety of products containing isoflavones from soy extracts are commercially available but the claimed amounts of isoflavone in such dietary supplements can be subject to inadequately defined variation. For example, recovery and stability of the isoflavones during the extraction is subject to the type of solvents and temperature that are deployed. It is thus essential to utilize consistent and well-defined protocols to control such changes during the extraction and processing of dietary supplements. We are investigating the effects of solvent and temperature parameters on the chemical stability as a prelude to examining different soy dietary supplements available in the Toledo area. Phytoestrogens will also be quantified by HPLC and compared to the claimed quantities of phytoestrogens. Biotransformation of certain soybean phytoestrogens (Daidzein, Genistein, Glycetein and their glycosides) in USP Simulated Gastric Fluid and Simulated Intestinal Fluid at 37 °C will also be studied.

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