令和７年度 東北医科薬科大学大学院薬学研究科

受験番号	

薬科学専攻博士課程前期課程入学試験(一次募集)問題

外国語 (英語①)

Herbal medicines (or dietary supplements) are widely consumed products in both developed and developing countries. These are complex chemical mixtures prepared from different parts of plant materials in crude form or extract. Standardization of plant materials and herbal formulations are essential in order to assess the quality based on the concentration of active constituents or marker compounds. Identification of chemical constituent's composition has been studied by various chromatographic and spectrophotometric techniques and combination of these methods. In addition, studies of various parameters such as batch-to-batch variations, stability study, chemical profiling are considered essential. Other factors such as pesticide residues, aflatoxin content, heavy metal analysis contamination are also equally important.

Chemical stability must be retained over time to prevent unwanted changes upon long term storage. Photo-irradiation, oxygen, humidity, pH, physical parameters, formulation and packaging can affect the overall chemical composition of botanical ingredients, enriched fractions or whole extracts. Stability studies are therefore necessary, in order to guarantee a consistent chemical composition over time. Stability studies are not only important for quality, but also for safety purposes. Stability studies are particularly relevant in the field of volatile organic compounds (VOCs) that are used in cosmeceuticals, where extraction and purification steps may promote or accelerate the degradation of phytochemicals.