

# A Discussion of the Recent Developments Made Towards the Standardization of Herbal Medicines

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**Abstract:** Herbal remedies are now widely accepted as effective treatment options for a number of illnesses. One of the biggest challenges facing scientists is the creation of reliable, genuine analytical techniques that can profile the phytochemical content. These techniques include quantitative studies of marker/bioactive chemicals and other important elements. Establishing a standardized biological activity, chemical profile, or even just a quality assurance procedure for the manufacture and manufacturing of herbal medications requires standardization. It is crucial to follow WHO-specific protocols for evaluating the quality, safety, and effectiveness of herbal medicines before attempting worldwide harmonization. An overview of the many methods used for standardizing herbal nanomedicines and for extracting and characterizing herbal medications is presented. Moreover, reports have been made regarding the enhanced bioavailability of phytosomes, the potential of metabolomics in the creation of better phytotherapeutic agents, the use of bhasma as a metal nanocarrier drug delivery system, the use of DNA-based molecular markers to identify adulterants, and the use of SCAR markers to authenticate and separate herbs from their adulterants. In regard to herbal medications, it has been discussed how high-value herbal compounds can be extracted using microwave-assisted extraction and supercritical phase extraction technology, followed by standardization using a variety of spectroscopic, chromatographic, and thermogravimetric techniques used singly or in combination. It is also stated that polarographic and capillary electrophoresis methods have contributed to the standardization of herbal medications. Chinese herbal medicines with a nanotechnology foundation have higher solubility and bioavailability.

**Keywords:** Herbal Drug Standardization, Standardization Advances, Quality Control, Traditional Medicine

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