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Cannabis Moisture Content and Potency – A Comparative Review of Methods

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Abstract: The 2018 Farm Bill established a new federal framework for hemp commercialization, and codified dry weight as the basis for THC determination. While using dry weight is not new, the Farm Bill marked the linkage of federal law to hemp and cannabis analysis. Crop yield, potency, and contamination in hemp and cannabis are all tied to dry weight, but how is dry weight accurately determined? The USDA defines dry weight as the weight of a substance “after excluding moisture from the item,” but many common techniques for moisture content determination fail to produce accurate results due to the high level of volatile compounds found in cannabis in addition to water. At present, there is no widely accepted standard method for determining moisture content in dry cannabis flower. In this work, we present a comparative review of numerous moisture content methods for cannabis flower, their precision, accuracy, and how the measured dry weight of cannabis changes the potency measurements. Methods include instrumental methods such as moisture balances, oven loss on drying, wet methods such as titration and distillation, as well as desiccant drying.