

Genetic Diversity of Phenotypic Traits and Biochemicals of Lettuce (*Lactuca sativa* L.) Germplasm

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Lettuce (*Lactuca sativa* L., Family Asteraceae) is highly ranked in production and economic value and is consumed either fresh or in salad mixes because of its important dietary source of bioactive phytochemicals. The world collection of *Lactuca* spp. leafy crops, maintained in NAC, includes 2,464 accessions from 71 countries around the world, of which 2,411 belong to *L. sativa* species, nineteen to *L. saligna*, and fifteen to *L. serriolar*. We aimed to investigate the lettuce germplasm with morphological and biochemical analyses and provide new material for breeding. The lettuce crop comprises seven main groups of cultivars (including oilseed lettuce) differing phenotypically. Agricultural characteristics were investigated including time to bolting, time to flowering, seed color, flower color, leaf attitude, leaf color, leaf anthocyanin coloration, type of incision of margin, depth of incisions of margins, and leaf venation. Screening of the health beneficial metabolites like anthocyanin and bitter sesquiterpene lactones (lactucin and lactucopicrin) was also conducted. The range of anthocyanin and SLs were 0~563.78 mg/100g D.W. and 3.74~3311.66 ug/g D.W., respectively. The investigation of the degree of variation regarding phenotypic traits and biochemical revealed adaptive stable and highly variable use of trait collection.

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