

[P4] Crop Genetics and Physiology

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 4 (Poster) (Crop Genetics and Physiology)

1:15 PM - 2:00 PM

[P4-08] Assessment of Geographical Distribution and Genetic Diversity of Five Sorghum Taxa Collected in Taiwan

*Nominated for Presentation Awards

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The genus *Sorghum* comprises a few C_4 species which are important resources for food, feedstock, and biofuel; instead, some of them are noxious weed. In Taiwan, abundant morphological diversity of five taxa, *S. bicolor*, *S. propinquum*, *S. halepense*, *S. bicolor* subsp. *verticilliflorum* and *S. vulgare* var. *technicum* were observed. These taxa can be found on wastelands, ditches, and farmlands where certain geographical distribution was observed, indicating different features of spreading within different types of sorghum. The cultivated- and wild-type sorghum were quite distinct. The panicle shape of *S. bicolor* subsp. *verticilliflorum* was also distinguishable. Yet, it was difficult to identify them based on plant and panicle architectures easily due to the existence of intermediate types. This study aims to survey the geographical distribution of five sorghum taxa in Western Taiwan and to investigate genetic diversity and clustering analysis among subpopulations estimated from 122 wild collections with 25 highly polymorphic SSR markers. *S. halepense* subpopulation displayed the highest genetic diversity. *S. bicolor* subsp. *verticilliflorum*, possessed the lowest diversity, was separated from the other taxa revealed by principal coordinate analysis, consistent with the result of the neighbor-joining tree. Finally, morphological identification mostly corresponded to the clades shown in the phylogenetic tree. Our study laid a foundation for evolutionary research of *Sorghum*.