

## **Integrated Korean Flora Database: A versatile web-based database for dissecting flora investigations with climate data**

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Flora investigations in Korea have been conducted by many researchers for diverse purposes. Accumulated flora investigation data has not been utilized efficiently because there is no accessible database for comparison. To overcome this shortcoming, we constructed web-based database of flora investigation, named as the Integrated Korean Flora Database (IKFD; <http://www.floradb.net/intro.php>). Until now, 284 flora references (263 papers, 14 reports and books, and 7 unpublished papers written in between 1962 and 2017) were digitalized into the database. From 134,711 records, 4,301 species belonging to 228 families and 1,079 genera were identified via mapping with two major Korean plant species lists. Polygon areas originated from references were used for distribution of plant species, identifying precise distribution area. It will be a better index to show plant ecological characteristics. Collected micro-climate data provided by Korea Meteorology Administration were also integrated in IKFD for understanding correlation between distribution of plants and micro-climate. Cold hardiness zone which has been utilized for classifying climate zones. 12 out of 26 zones identified based on micro-climate data in Korea were mapped with distribution of plants. More than half species were appeared in zone 6a, 6b, 7a, and 7b. Taken together with these results, IKFD will be a fundamental platform for understanding plants in Korea flora investigation as well as a new standard for classifying distribution of plants. Moreover, Biodiversity Observation Database (BODB; <http://www.biodiversitydb.info/intro.php>) which integrates plant distribution data was also integrated for further studies.

Key words: Flora Database, Microclimate, Automatic Weather System, cold hardiness zones, plant distribution, BODB

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