ABSTRACT
Ecogeographical data complement genotypic and phenotypic information on plant genetic resources and provide an alternative characterization when resources are scarce. Ecogeographical core collections can be created by directly characterizing georeferenced collecting sites or by assigning them categories from ecogeographical land characterization maps (CEM). Our objective was to determine the suitability of core collections based solely on ecogeographical data and the most appropriate combination of grouping and allocation methods in representativeness and simplicity. Using six Lupinus species as case studies and peninsular Spain and the Balearic Islands as workspace, we evaluated 16 ecogeographical core collections obtained by applying different grouping and allocation methods. Six core collection strategies met existing standard representativeness criteria and performed better than random selection of accessions. The Ward-Modified Location Model (Ward-MLM) and two-step clustering (TSC) with proportional allocation strategy (P) produced the most representative core collections. Grouping according to CEM with P allocation also produced a highly representative core collection but through a simpler procedure. In conclusion, ecogeographical data can be used to create representative core collections with similar strategies to those used with genotypic or phenotypic data or simpler ones such as CEM, which is easy to apply and update.

A core collection is a limited set of accessions derived from an existing germplasm collection, chosen to represent the genetic spectrum in the whole collection (Brown, 1989). Selecting accessions to form a core collection does not imply any risk in conservation terms, because all accessions (both selected and unselected) are maintained in the genebank (Brown and Spillane, 1999). With this premise, the creation of core collections is a very useful tool for prioritizing characterization and evaluation activities when the size of the collection or economical constraints or...