# POSTER SESSION – SÉANCE DE POSTERS – POSTERSEKTIONEN 3 & 6

1.1 MARCO ANDRELLO[1], KARINE HENRY[2], PIERRE DEVAUX[2], BRUNO DESPREZ[2], STÉPHANIE MANEL[2]

[1] CEFE UMR 5175, CNRS - Université de Montpellier - Université Paul-Valéry Montpellier - EPHE, Laboratoire Biogéographie et Écologie des Vertébrés, 1919 route de Mende, F – 34293 Montpellier Cedex 5

[2] Florimond Desprez, F – 59242 Cappelle en Pévèle

## TAXONOMIC, SPATIAL AND ADAPTIVE GENETIC VARIATION OF *BETA* SECTION *BETA*

### ABSTRACT

We investigated the genetic diversity of *Beta* section *Beta*, which includes the wild and cultivated relatives of the sugar beet. The taxa included in the study were: *Beta vulgaris* subsp. *maritima*, *B. vulgaris* subsp. *adanensis*, *B. macrocarpa*, *B. patula* and *B. vulgaris* subsp. *vulgaris* (garden beet, leaf beet and swiss chards). We collected 1264 accessions originating from the entire distribution area of these taxa and genotyped them for 4436 DArT markers (DArTs). We showed that the genetic variation of these accessions is structured into four taxonomic and spatial clusters: i) samples of *Beta macrocarpa*, ii) samples of *Beta vulgaris* subsp. *adanensis*, iii) Mediterranean and Asian samples and iv) Atlantic and Northern European samples. These last two clusters were mainly composed of samples of *Beta vulgaris* subsp. *maritima*. We investigated in deeper detail the genetic structure of *B. vulgaris* subsp. *maritima*, which constituted the majority (80%) of the wild samples and is the closest wild relative of the sugar beet. This subspecies exhibited a clinal genetic variation from South-East to North West. We detected some markers significantly associated to environmental variables in *B. vulgaris* subsp. *maritima*. These associations are interpreted as results of natural selection. The environmental variable most often involved in the associations was annual mean temperature. Therefore, these markers can be useful for the development of frost-tolerant winter beets and drought-tolerant rain-fed beets.