

in the length of the pollen tubes. In auxin- treated pollen, the length of the pollen tubes increased by 18-66% compared to the control, while in gibberellin- treated pollen, the length of the pollen tubes increased by 12-78% compared to the control. Therefore, treatment of trees with auxin and gibberellin can be recommended as a measure to improve the efficiency of fertilization and yield of plums.

**Keywords:** *Prunus domestica*, cultivar, plant hormones, pollen germination in vitro, pollen tube length

S08 P-III-8

### **Nutritional quality of Valencian chard landraces**

Penella, C<sup>1</sup>, Gorbe E<sup>1</sup>, Rausell-Moreno A<sup>2</sup>, Martínez-Ispizua E.<sup>1</sup>, Martínez-Cuenca M.R.<sup>1</sup>, **Calatayud A<sup>1</sup>**.

<sup>1</sup>*Department of Horticulture, Valencian Institute for Agricultural Research (IVIA), Moncada, Valencia, Spain.*

<sup>2</sup>*Department of Biogeography and Global Change, National Museum of Natural Sciences (MNCN-CSIC), Madrid, Spain*

Swiss chard (*Beta vulgaris* var. *cykla*) has been part of Mediterranean gastronomy since historical times. Traditional cultivars constitute a fundamental resource to ensure agronomic biodiversity, thus enabling the cultivation of vegetables adapted to changing environmental conditions. Additionally, chard has shown great preventive potential against cardiovascular or cognitive diseases, thanks to the protective effects attributed to components such as carotenoids, phenols, or vitamins. With the aim of providing relevant information on the quality of 12 local cultivars of Valencian chard, this study analyzes different parameters of nutritional interest (antioxidant capacity and concentration of chlorophylls, carotenoids, phenols, flavonoids, ascorbic acid, and nitrates) in stalks and leaves, comparing them with 2 commercial cultivars. The results show a significant distinction between leaf and stalk for most parameters and genotypes, although none of the landraces consistently outperformed the commercial cultivars in their concentration of chlorophylls, carotenoids, phenols, flavonoids, or ascorbic acid. Regarding the concentration of chlorophylls, AG6 and AG13 stood out, while for carotenoids, AG3 and AG13 showed the highest values. For phenols, flavonoids, and ascorbic acid, the highest concentrations were found in the genotypes AG5, AG3, and AG11, respectively. In the case of nitrates, there were landraces with lower content than commercial genotypes, such as AG4 and AG5, making them more suitable for preparing children's food. Valencian traditional cultivars harbor a high degree of diversity that allows selecting those best suited to the region's climatology, making them an interesting alternative to biotic and abiotic stresses derived from climate change.

**Keywords:** traditional cultivar, quality, agrobiodiversity, nutraceutical, nitrate

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### **Carrot genetic diversity in Europe based on breeding traits**

**Geoffriau, E.** <sup>1</sup>, Hedoin, D.<sup>1</sup>, El Ghaziri, A.<sup>1</sup>, Huet, S.<sup>1</sup>, Pagan, P.<sup>2</sup>, Mallor, C.<sup>3</sup>, Thabuis, A.<sup>4</sup>, Chevalier, J.<sup>5</sup>, Salgon, S. <sup>6</sup>, Groenewegen, M. <sup>7</sup>, Ingremeau, A. <sup>8</sup>, Martinez, M.S. <sup>9</sup>,

Nothnagel, T.<sup>10</sup>, Budahn, H.<sup>10</sup>, Lehnert, H.<sup>10</sup>, Keilwagen, J.<sup>10</sup>, Burges, T.<sup>10</sup>, Lopes, V.<sup>11</sup>, Katschnig, D.<sup>12</sup>, Allender, C.<sup>13</sup>, Goritschnig, S.<sup>14</sup>

<sup>1</sup>*Institut Agro, Institute Research Horticulture Seeds, 2 rue Le Notre, 49045 Angers, France*

<sup>2</sup>*NN, NN, Italy;*

<sup>3</sup>*CITA, Zaragoza, Spain*

<sup>4</sup>*Rijk Zwaan, Aramon, France*

<sup>5</sup>*Vilmorin Cie, Ledenon, France*

<sup>6</sup>*Takii France, Eyragues, France*

<sup>7</sup>*Sementes Vivas, Idanha-a-Nova, Portugal*

<sup>8</sup>*OBS, Plougoulm, France*

<sup>9</sup>*Julius Kühn-Institut, Quedlinburg, Germany*

<sup>10</sup> *BASF Vegetable Seeds, Nunhem, Netherlands*

<sup>11</sup>*INIAV, Braga, Portugal*

<sup>12</sup>*Bejo Zaden B.V., Warmenhuizen, Netherlands*

<sup>13</sup>*Warwick University, Warwick, United Kingdom*

<sup>14</sup>*ECPGR Bioversity, Rome, Italy*

The ECPGR European Evaluation Network (EVA) on carrot established in 2019 aims at improving the characterization and evaluation data on accessions held in European genebanks in order to favor their utilization (<https://www.ecpgr.cgiar.org/european-evaluation-network-eva/eva-networks/carrot>). In a public-private research partnership at the pre-competitive stage, eight private breeding companies, four genebanks and two research institutes evaluated sixty carrot accessions over two years in multilocation field trials across Europe with an emphasis on biotic stresses and agronomic traits of interest for breeders. The objective of the study was to evaluate the diversity in carrot considering the environmental variability. Statistical methods using R package were used to infer the missing data, to run analyses combining numerical and nominal data, to evaluate the extent and structure of the diversity based on breeding traits and to identify the most discriminating traits. The results show the major importance of Genotype by Environment interaction, which however varies depending on the trait. The genetic diversity is large and partially structured depending on the country of origin. Among more than 50 observed traits, the most discriminating ones appear to be the root diameter and length, the bolting habit, the foliage volume, the width of collar leaf insertion and the root inner and outer color. Based on these results, the perspectives in terms of genetic resources management and valorization in Europe, association genetics and public-private partnerships will be presented.

**Keywords:** Genetic resources, *Daucus carota* L., Genotype by Environment interaction

S08 P-III-10

**Are you looking for cold tolerant citrus rootstocks? A preliminary screening**