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PHENOMIC CHARACTERIZATION SEED AND POD OF INTERSPECIFIC HYBRID BETWEEN *P. acutifolius* x *P. vulgaris* x *P. montanus*

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OBJECTIVES

P. acutifolius

P. montanus

P. vulgaris

Hybrid interspecific

Implement high-throughput phenotyping methodologies that contribute to optimized characterization of the interspecific hybrid and its parentals from digital images

Explore the phenotypic diversity of the interspecific hybrid and its similarity to the parents using multivariate analysis

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PHENOMIC CHARACTERIZATION: GEOMETRIC MORPHOMETRY AND DIGITAL COLORIMETRY

Image capture

Image preprocessing

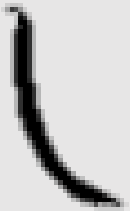
Flowers

Bean seeds

Leaves

Binarization - Geometric Morphometry

Pods



Seeds

leaves

Color space – digital color images

Flower colour

Seed colour

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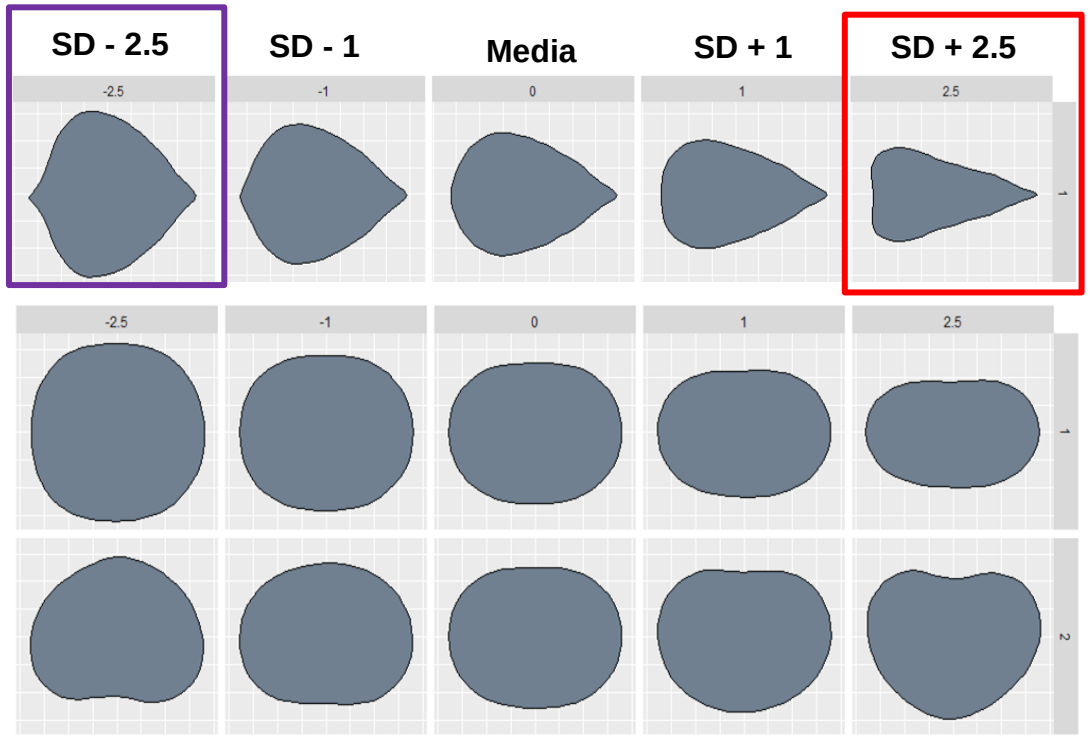
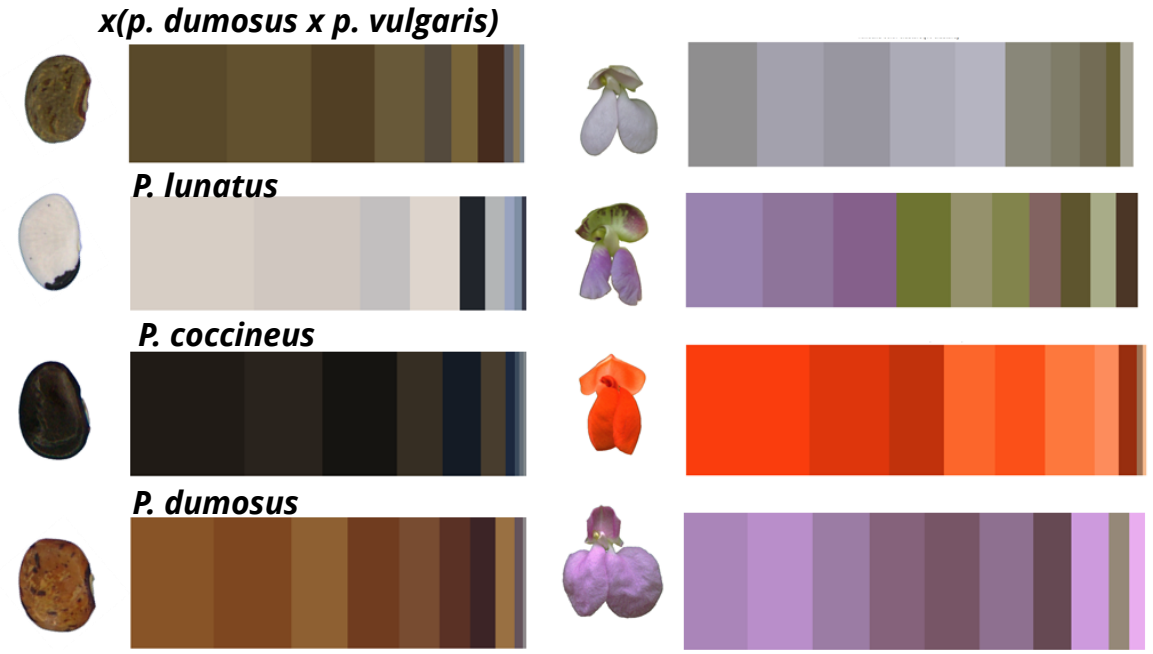
GEOMETRIC MORPHOMETRY AND DIGITAL COLORIMETRY CONTRIBUTE TO SPECIES DISCRIMINATION



PC1 Leaf

PC1 Seed

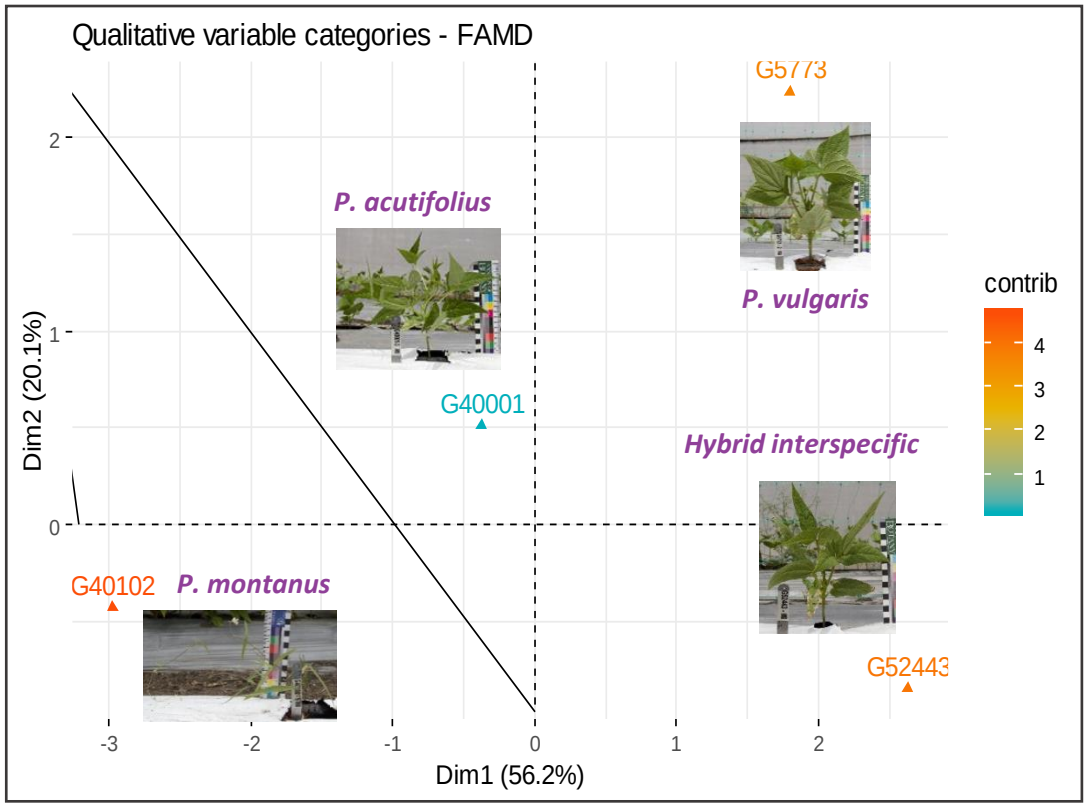
PC2 Seed



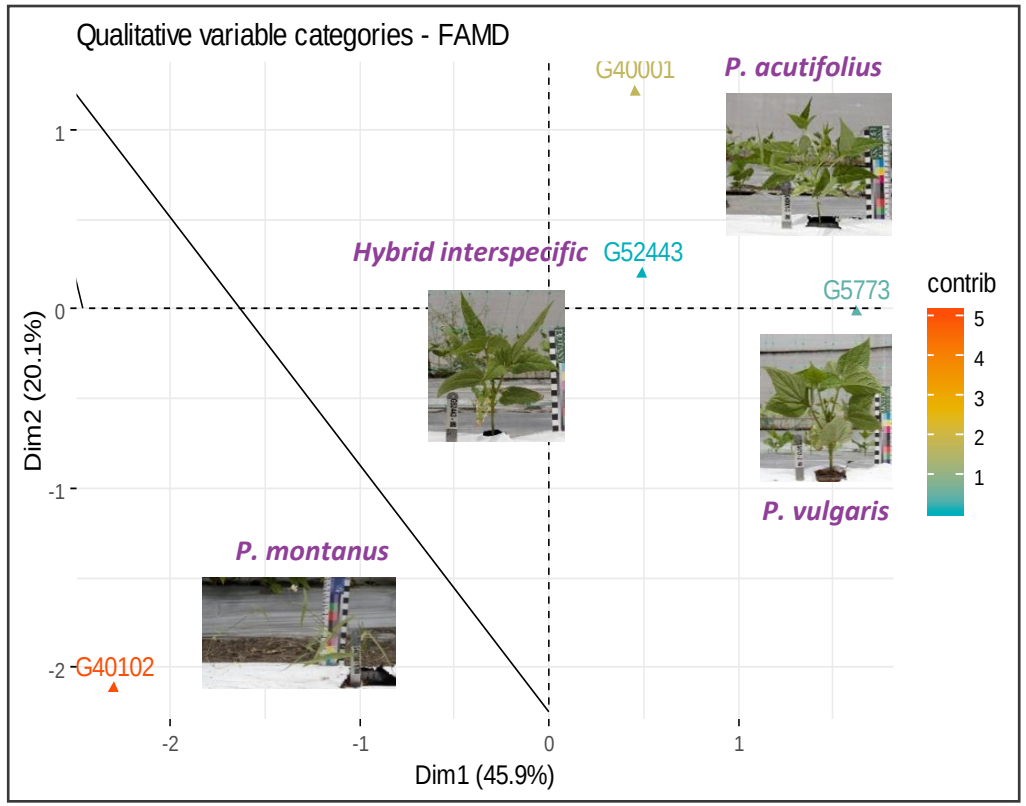
P. dumosus
CIAT G35586

P. lunatus
CIAT G26736

PHENOMIC MORPHOMETRY OF POD AND SEED SHOWS THE PHENOTYPIC DIVERSITY OF THE INTERSPECIFIC HYBRID AND ITS PARENTS



Seed shape

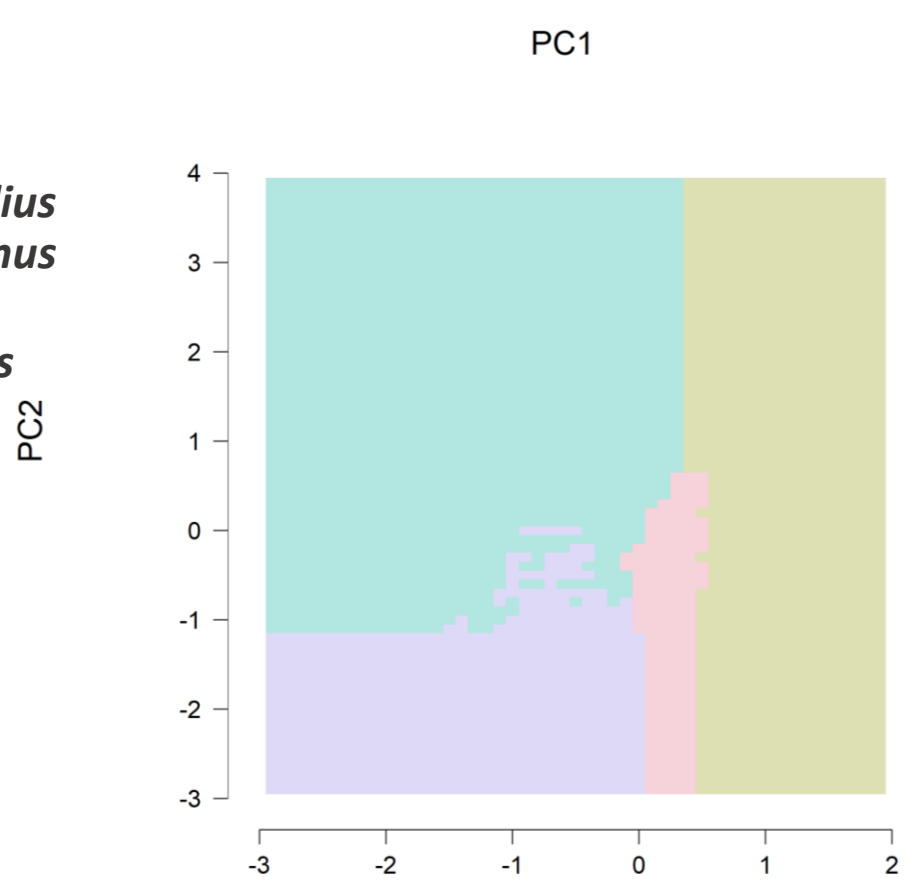


Pod shape

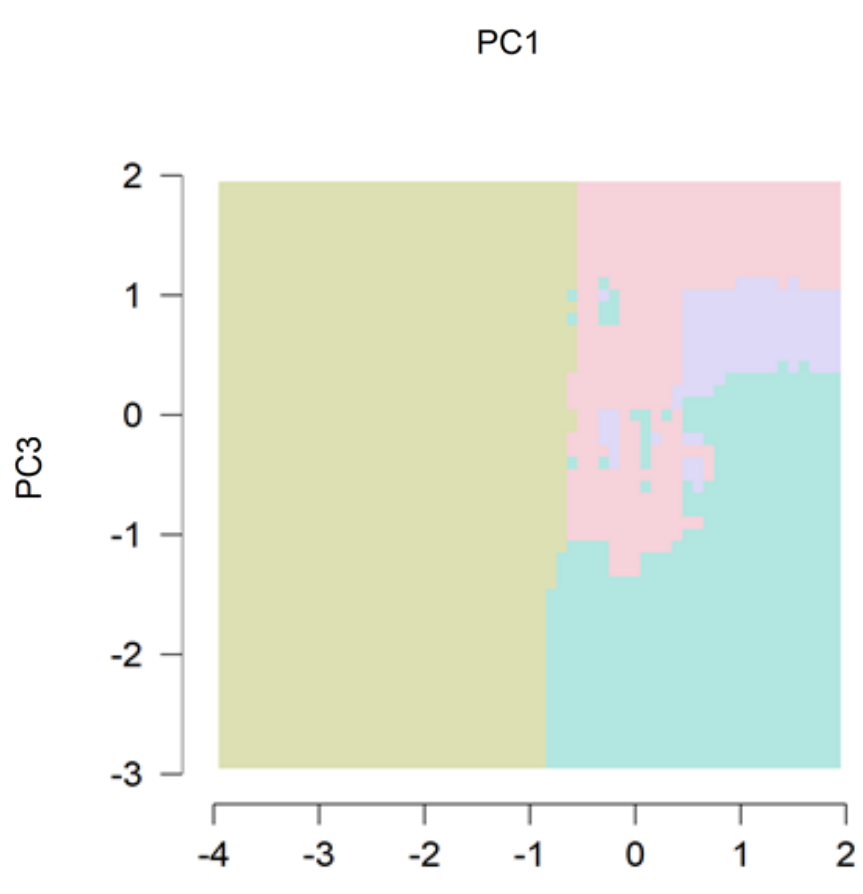
FAMD: Factor analysis of mixed data

DECISION BOUNDARY MATRIX DISCRIMINATES PHENOTYPIC DIVERSITY OF SEED AND POD SHAPE OF HYBRID AND PARENTALS

- *P. acutifolius*
- *P. montanus*
- *Hybrid*
- *P. vulgaris*



Seed shape



Pod shape

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CONCLUSIONS

Phenomics traits can help to quantify the phenotypic diversity of common bean wild relatives.

The interspecific hybrid (G52443) conserved pod and seed shape characteristics from the *P. vulgaris* and *P. acutifolius* parentals, while little was apparent from the *P. montanus*.

Methodologies based on phenomic traits can support characterization processes in genebanks.

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Thanks !

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