

Preliminary studies on pollen production and viability in wild relatives and cultivated cassava

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INTRODUCTION

Cassava wild species are important sources of useful genes for cassava breeding programs. However, little is known about the viability and other characteristics of pollen within wild and cultivated cassava germplasm. This study is crucial to better understanding the process from pollination to seed production.

Objectives:

To evaluate the genetic variation of some pollen characteristics which are very correlated to pollination efficiency, in accessions of wild *Manihot* and *M. esculenta*.

To estimate the potential of production of pollen grains and their viability for crossing.

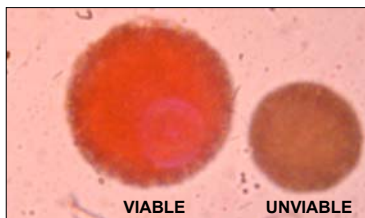
METHODOLOGY

Plant material:

Plants from a working collection of *Manihot* species at Embrapa/CNPMPF. Anthers from male flowers of different species were randomly collected just before the anthesis and stored in ethanol:acetic acid (3:1) for viability analysis or in ethanol 70% for pollen counting.

Pollen viability:

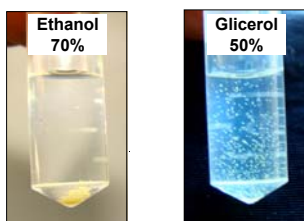
Estimated by the carmine staining method:



Pollen production:

Determined using the counting of pollen grains suspension in glicerol 50%:

Pollen grains from 1 flower in:



Pollen diameter:

Estimated by micrometric slide method.

RESULTS

All the evaluated parameters showed genotypic differences among *Manihot* species (Figs. 1 to 3). The pollen production varied from 1056 to 2692 grains per flower (Fig. 2). In general the wild species produced more pollen than *M. esculenta* (Fig. 2). The pollen diameter varied from 128 to 169 micrometers (Fig. 3). The highest diversity was found in pollen viability varying from 47% to 97% (Fig. 1)

These preliminary results revealed that the studied parameters have a large variability within *Manihot* germplasm. Further detailed studies aiming the correlation between these parameters and crossing compatibility are currently underway.

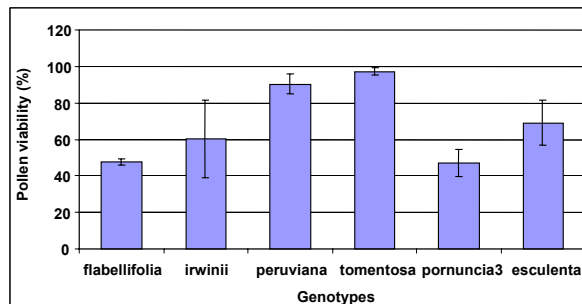


Fig. 1 - Pollen viability in different *Manihot* species

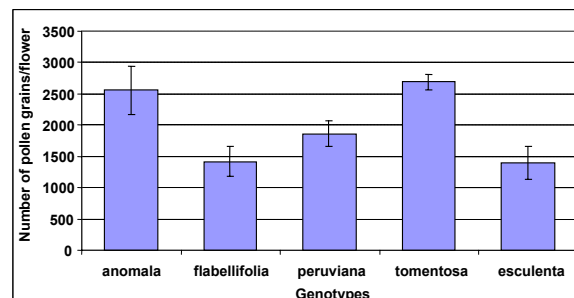


Fig. 2 - Pollen production in different *Manihot* species

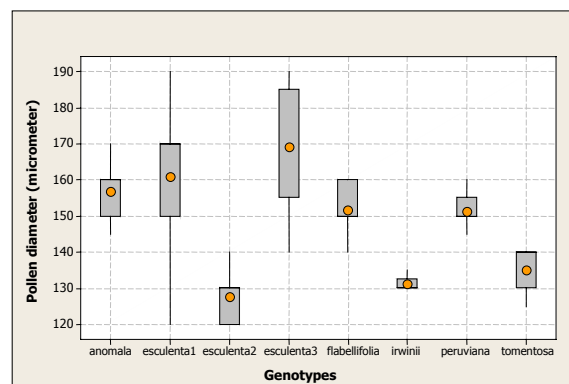


Fig. 3 - Pollen diameter in different *Manihot* species