Pollination, a matter beyond the visible

Diannefair Duarte Hernández, Edith Moreno Martínez, Paula Alejandra Arenas Velilla, Omar Domínguez Amorocho

Fedecacao - FNC, Colombia

FEDERACION NACIONAL DE CACAOTEROS
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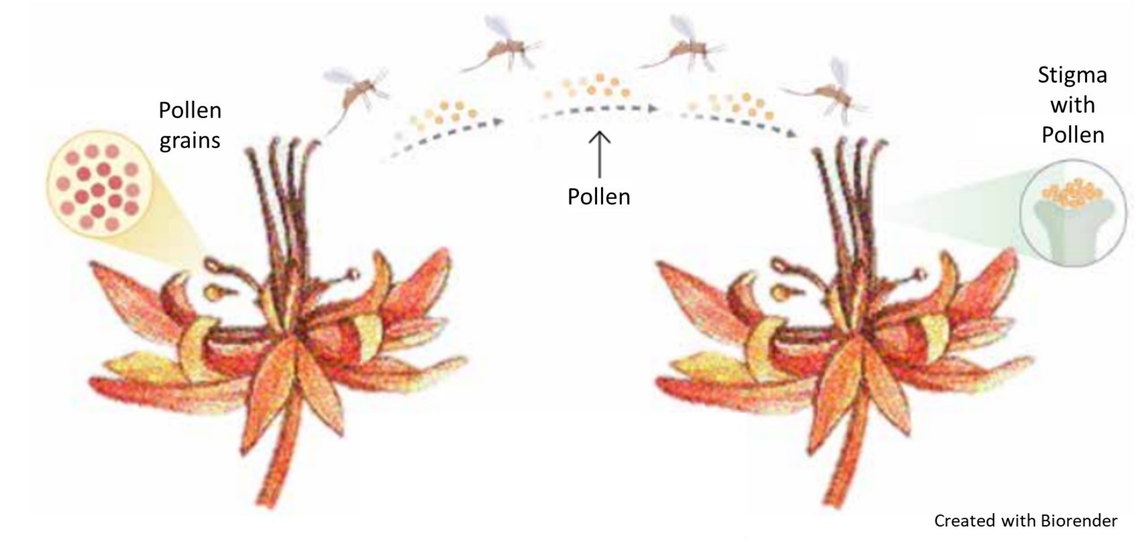
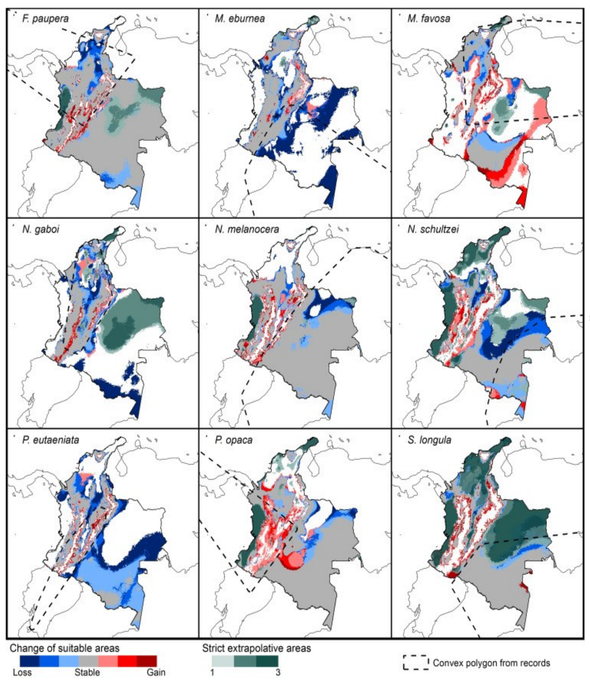
Introduction

The cacao tree cannot produce cacao beans unless its flowers are pollinated, making pollination an essential part in the production of chocolate. In biological terms, the pollination of a plant's flowers is the transfer of pollen to the plant's ovules (to allow their fertilization. The cacao tree produces aproximatelly 4554 ± 687 flowers every semester, but around 5% get pollinated (Gaibor, 2018) . This means that 95% don't receive any or enough pollen, and is therefore aborted by the tree.

Figure 1. Main factors involved in T. cacao pollination.

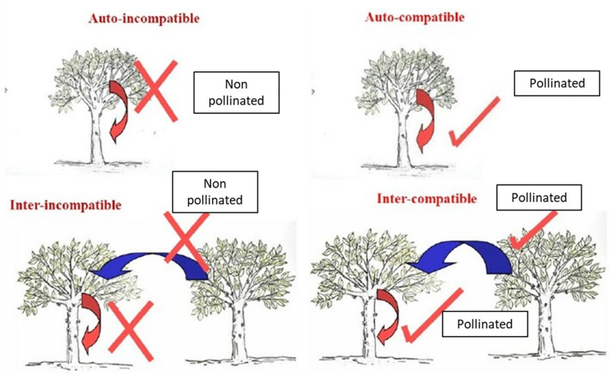


* The tiny size and the intricate reproductive structure of the cacao flower.
* Pollen viability
* The specific kind of pollinators needed to complete the pollination process.



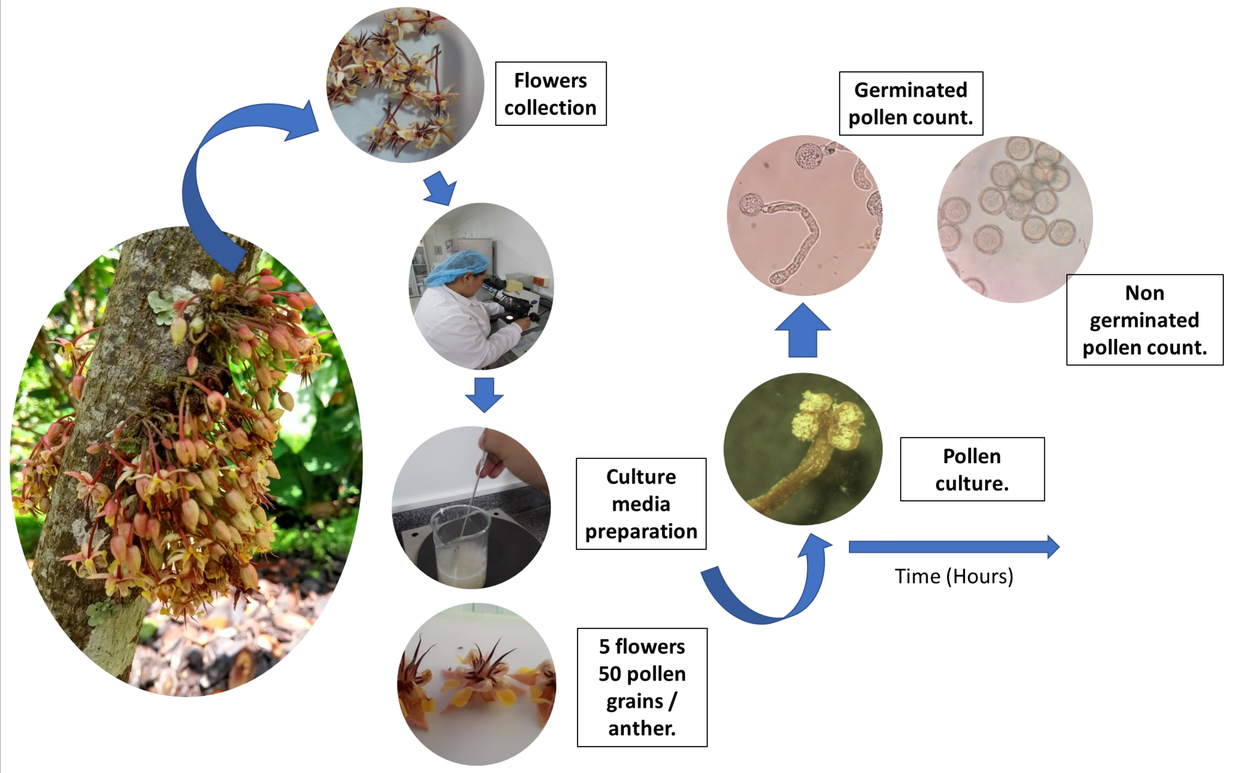
https://www.sciencedirect.com/science/article/pii/S2530064421000250

* The compatibility of the cacao tree.

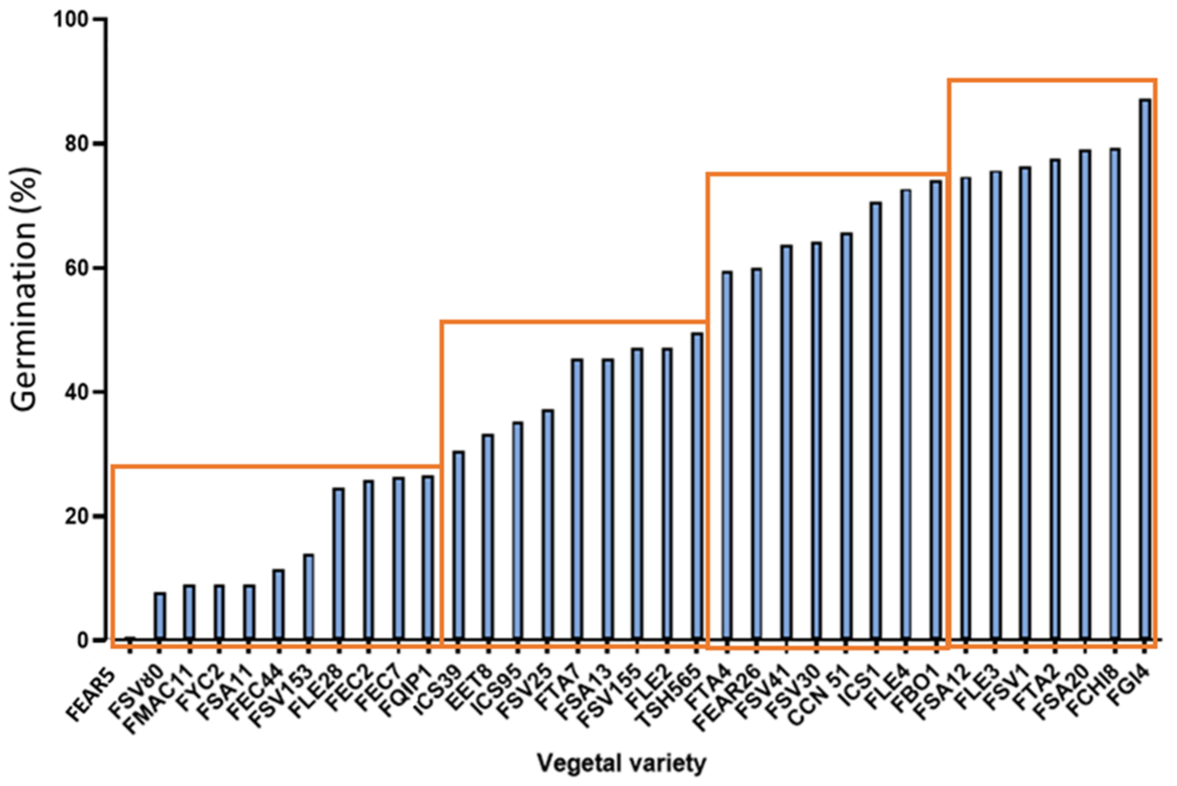


* The effect of climate change and cultural activities like use of pesticides are having an important impact on the reduction of pollinators in Colombia.

Materials and methods



Results



Conclusions

FGI4 showed the highest level of germination using the proposed methodology.

It was posible to classificate the evaluated materials according the *in-vitro* germination capacity into four groups: high (above 75%): FSA12, FLE3, FSV1, FTA2, FSA20, FCHI8, FGI4; intermediate-high (50-75 %): FTA4, FEAR26, FSV41, FSV30, CCN51, ICS1, FLE4, FBO1; intermediate-low (25-50%): ICS39, EET8, ICS95, FSV25, FTA7, FSA13, FSV155, FLE2, TSH565; and low (≤25%): FEAR5, FSV80, FMAC11, FYC2, FSA11, FEC44, FSV153, FLE28, FEC2, FEC7, FQIP1.

References

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