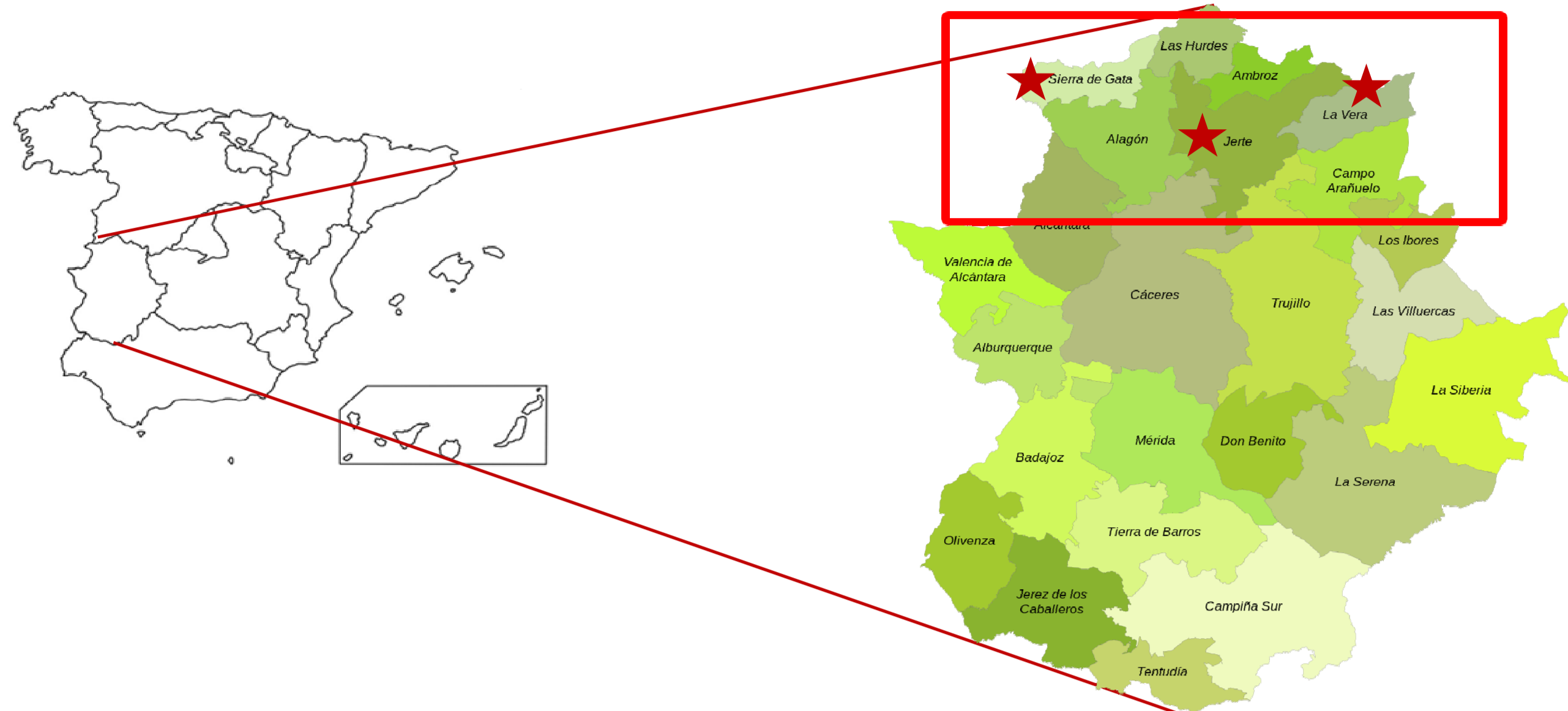


# First Results of New Raspberry Breeding Programme in Western Spain



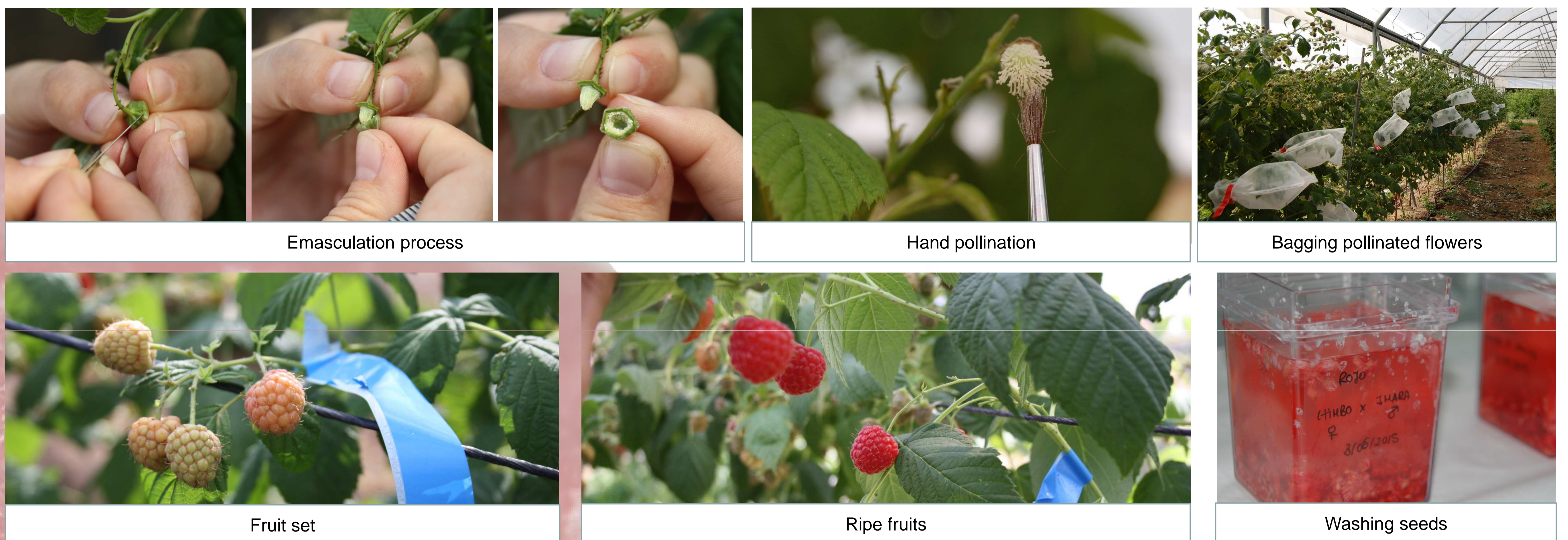
M.E. Guerra<sup>1\*</sup>, C. Casadomet<sup>1</sup>, G. Domínguez<sup>1</sup>, M. López-Corrales<sup>1</sup>; <sup>1</sup>CICYTEX-La Orden, Badajoz, Spain; \*[mariaengracia.guerra@gobex.es](mailto:mariaengracia.guerra@gobex.es)



Red raspberry (*Rubus idaeus* L.) has been grown in the north of Extremadura in Spain for more than three decades, mainly in the regions of “La Vera”, “Valle del Jerte” and “Sierra de Gata”, both in greenhouses and outdoor orchards. Over the last decade, new cultivars have been established from different breeding programmes; however, many of these modern cultivars are not well adapted to the agroclimatic conditions of these regions. The lack of firmness or a very dark red fruit colour were the main problems identified. In 2015 initiate a breeding programme with the aims of obtaining new cultivars from a modern pedigree with desired traits, specially adapted to this crop area. In this work we have developed techniques of emasculation and pollination, and have determined suitable pollen viability medium, in several crosses of commercial cultivars of red raspberry.

## First steps: emasculation, pollination, fruit set collection and obtaining seeds

To avoid the natural pollination by bees and bumblebees emasculation process is carried out, and then the flower are pollinated manually and bagged to avoid the arrival of pollinating insects. Finally ripe fruits were collected about one month after pollination and the seeds obtained were separated from the pulp to begin the process of forced germination.



## Pollen viability

A new medium has been developed in this work based in previous studies in other species. The medium tested were named C1 to C6, with different concentration of calcium, and boric acid. The best medium selected was C4 (Fig 1). The fundamental difference between the culture medium C4 developed in this work and the previously described in *Prunus* lies in the increased concentration of  $\text{Ca}(\text{NO}_3)_2$  since calcium plays an important role in pollen germination and growing pollen tubes. Another important difference of the new medium is the increased concentration of sucrose. A pollen grain was considered viable when its growing pollen tube was longer than the pollen grain diameter (Fig 2). The pollen grains are heterotrophic and containing some reserve materials that used during autotrophic stage germination, but these are not sufficient to maintain the important synthesis material of the cell wall takes place during pollen tube growth and the sucrose acts in this moment as nutrient source to help the pollen tube growth. (Barr. 50  $\mu\text{m}$ )

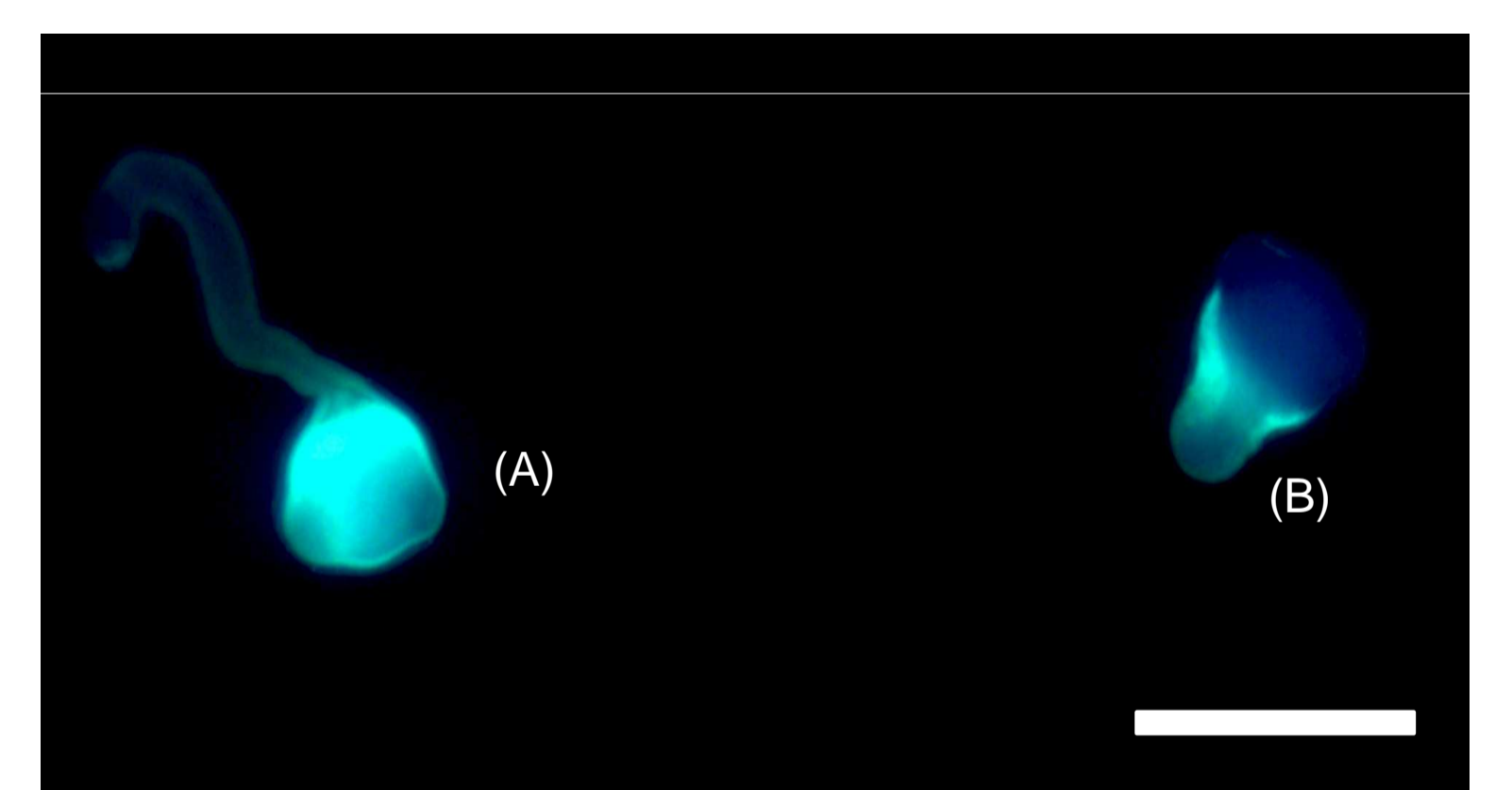


Fig 2. Pollen grain viable (A), pollen grain non-viable (B)

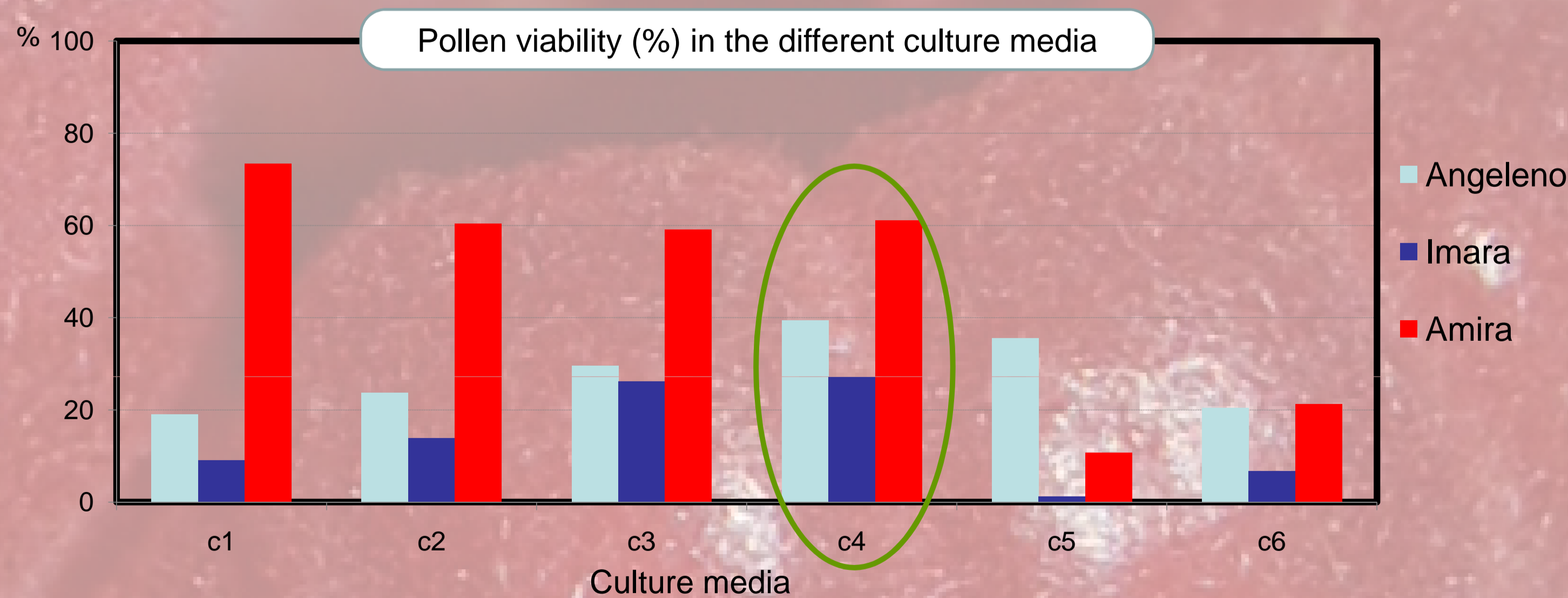
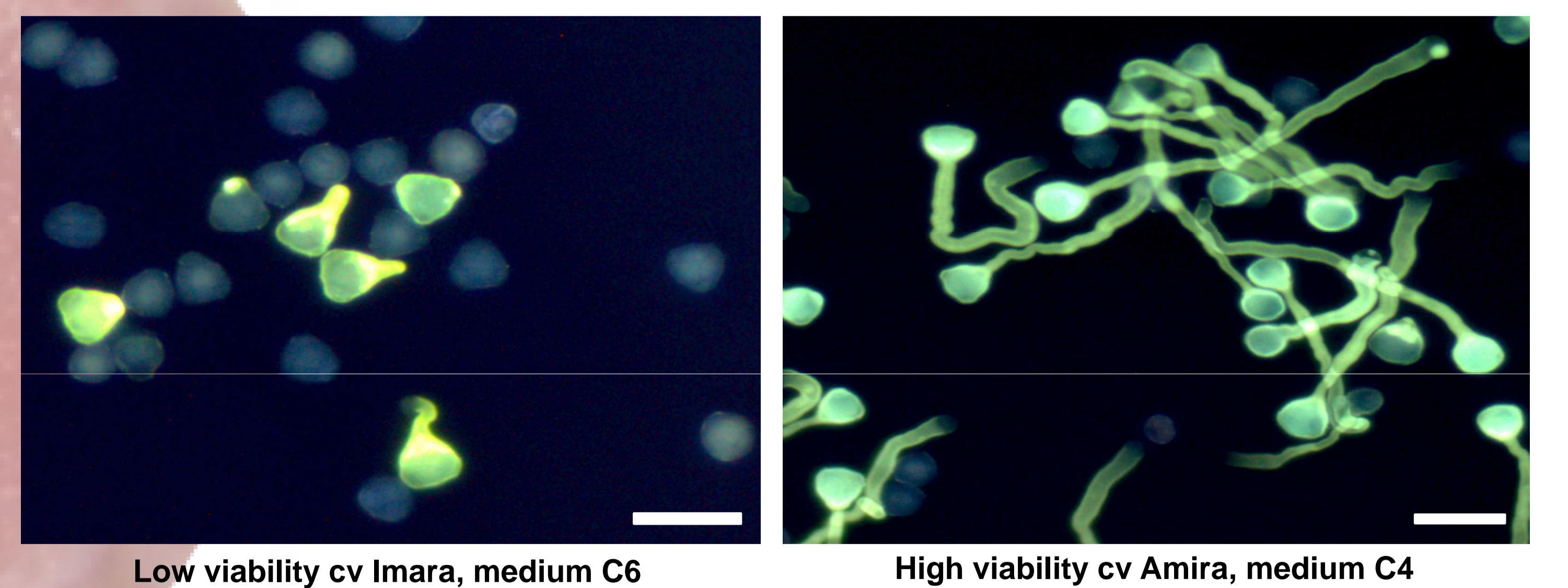


Fig. 1. Percentage of pollen viability of each culture media tested



Low viability cv Imara, medium C6

High viability cv Amira, medium C4