

# *Euphorbia pervilleana* Baill. – A *Euphorbia* with spectacular fruits

by Wolfgang Ewest

For many years, I have had two plants of *Euphorbia pervilleana* Baill. in my collection, which I once received as seedlings. *E. pervilleana* is the namesake of section *Pervilleanae* Haev. & X. Aubriot within the subgenus *Euphorbia*. Related species are *E. randrianjohanyi* Haev. & Labat and *E. rauhii* Haev. & Labat. The name *E. spinicapsula* Rauh & Petignat has been used as a synonym of *E. pervilleana* (Haevermans & Labat, 2004).

According to literature (Haevermans & Labat, 2004) plants can grow up to 4 m in nature. My plants are about 1 m high (Figs 1 and 2). The species is not succulent, but has a thickened water storing rootstock (Fig. 3). It comes from forest areas and needs more moisture and higher humidity during the growing season than succulent Madagascan *Euphorbia*. Never-

theless, it is well adapted to prolonged drought by dropping all its leaves at the beginning of the dry season. If the dryness lasts too long, the plants also shed some of the thinner branches (Fig. 4) at their sprouting points. These “discharging points” are similar to the leaf scars that remain after the plants have shed their leaves through the development of an abscission layer (Fig. 5). When the next growing season starts new



Fig. 1: Male plant of *Euphorbia pervilleana* at resting period



Fig. 2: Female plant at resting period



Fig. 3: Thickened stem base



Fig. 4: Thin branches

shoots are produced at the knot-like thickened tips of the branches to replace the lost ones. Due to this strategy, longer dry periods limit the height the plants reach resulting in small “bonsai trees”.

Cyathia appear terminally at the apices of the branches. *Euphorbia pervilleana* is dioecious, i.e. for propagation from seed you need at least one female and one male plant. But that’s not enough. Although my two plants have both produced flowers now and then, they hardly ever did so at the same time.

This year it was only the second time that my two plants flowered synchronised. Like in most *Euphorbia*, the cyathia are quite small and inconspicuous (male cyathium Fig. 6).

In contrast to the majority of euphorbias however, the female plants of members of section *Pervilleanae*



Fig. 5: Scar left from a shed branch

bear fruits with only 2 seeds (functionally bilocular, see Dorsey et al., 2013) (Fig. 7). Therefore, in the past there were some thoughts about separating them from the genus *Euphorbia* (Haevermans & Labat, 2004).

After successful pollination, fruits develop very fast (!) (Fig. 8). The fruit differs significantly from the familiar appearance of a *Euphorbia* seed capsule. It rapidly grows up to 3 cm in diameter (Fig. 9) and is similar to the fruit of a horse chestnut (*Aesculus hippocastanum*). It is juicy and its spines are soft. Compared to the thin branches, the fruit is immensely large (Fig. 10). After a short time, it falls off and the seed case decays and withers. At this stage I have harvested the seeds.

In the fruit two large seeds develop of about 1 cm in diameter (Fig. 11). I have sown my seeds soon after harvesting them and they germinated rapidly



Fig. 6: Male cyathium



Fig. 7: Female cyathium



Fig. 8: Fruit, 5 days after pollination



Fig. 9: Fruit, 10 days after pollination



Fig. 10: Fruit, 18 days after pollination

(Fig. 12). As you can see in the photo, the thickened rootstock starts to develop already at a very early stage after germination.

And again *E. pervilleana* shows an unusual development. Everybody who has sown *Euphorbia* seeds will have noticed that the seed capsule is dropped quickly and the two cotyledons expand. The seedling needs them for photosynthesis and further growth. In contrast, the fleshy cotyledons of *E. pervilleana* remain in the seed capsule while the rootstock develops. Finally, the seedling sheds the cotyledons and with them the seed capsule. Fig. 13 clearly shows the scars of the fallen cotyledons and the first leaves have already developed in the seed capsule.

To illustrate the high pace of development, Table 1 gives a time scale from pollination to germination.

Table 1: Time scale of development from pollination (September, 9, 2019) to germination

Day 0	pollination
Day 5	Fig. 11
Day 10	Fig. 12
Day 18	Fig. 13
Day 24	Fruit maturity
Day 36	Sowing
Day 40	Germination

## Literature

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Fig. 11: Dry seeds (square = 5mm)



Fig. 12: Developing seedling



Fig. 13: Seedling, note the scars of the fallen off cotyledons. The picture shows the development 7 days after Fig. 12 was taken.