Hair Characteristics on the Style, Stamens and Ovary of Primary Rhododendron Hybrids and their Parents

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An important characteristic for identifying a rhododendron species is their different hair types and their occurrences (see references) on flower parts, i.e., the style, stamens and ovary. In general, hairs on plants may be being used for different purposes on a plant, depending on where they are located. Glandular hairs may help in preventing insects from eating a plant part by fouling them in a sticky mass, especially if their wings become glued together. Glandular hairs may also sometimes emit aromatic scents that can repel animals. Larger hairs that act as impeding "brushes" may also be a defense. Smaller hairs are thought to minimise water loss on leaves and may provide some protection against UV radiation. Hair in the flower is mal help minimise cross-pollination with other plant species and provide some protection of the ovary from being eaten.

On the Danish website www.rhododendron.dk/alfabet.html, I have included a picture of the ovary, stamens and style for identification for more than 300 species. In addition, I have plants in my garden that were produced by either open and controlled pollination (OP and CW), and some offspring that either hybrids and or the species. Although many plants found in nature are labeled as primary hybrids, one can often reject this claim by showing what the hair distribution on plant parts in a primary cross actually looks like.

Below are examples of how hairs on flower structures appear in primary hybrids versus on their parent species:

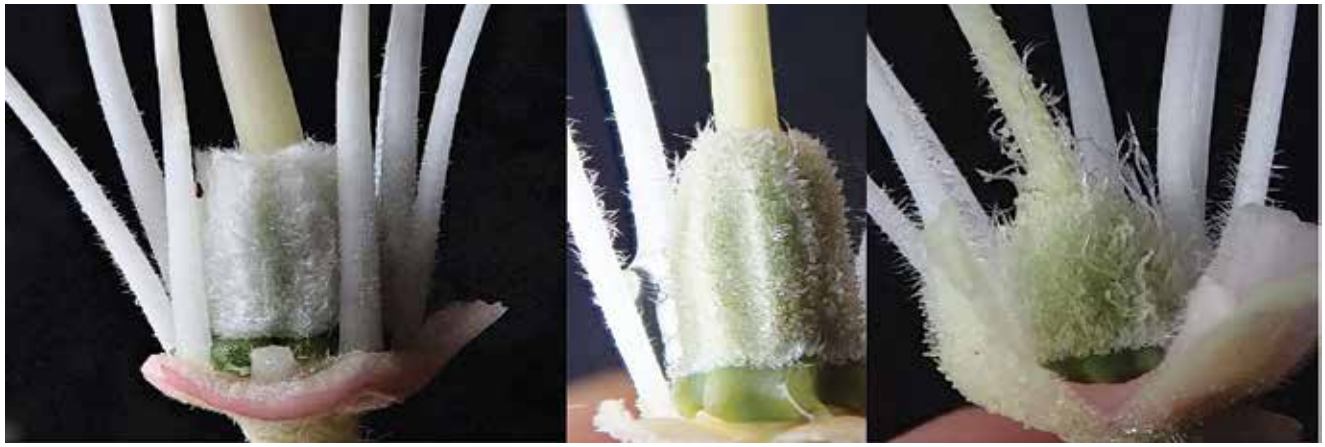

Figure 1. *R. degronianum* var. *yakushimanum, R. degronianum* var. *yaku*shimanum X *R. bureavii* and *R. bureavii*. On the hybrid in the middle, hair on the style is lost while hairs air on the stamen stalks can become more robust. Hair on the ovary does not disappear, but is shorter than on *R. bureavii*.

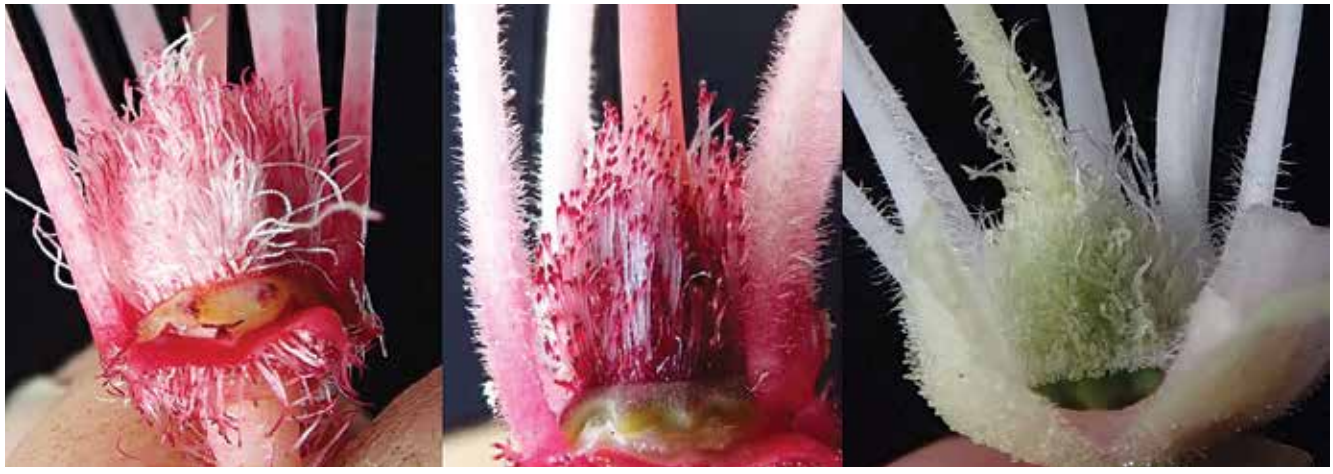

Figure 2. Images on hairs from *R. strigillosum, R. strigillosum* X *R. bureavii* and *R. bureavii*. On the hybrid's image in the middle, hair on the style has disappeared, while hairs on the stamen stalks are more robust. Glandular hairs on the ovary do not disappear in the hybrid. The hair intensity on *R. bureavii*'s style and stamens varies from clone to clone, so an intermediate/robust inheritance cannot be assessed from a single cross.

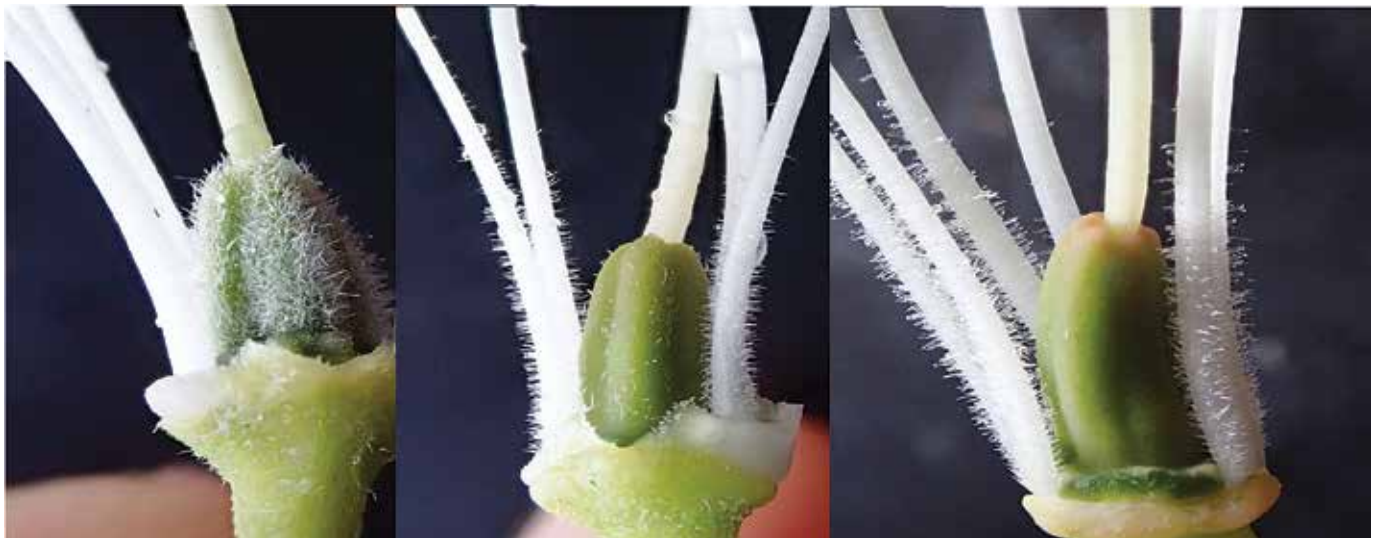

Figure 3. *R. caucasium, R. cauca*sium X *R. ponticum* and *R. ponticum*. On the hybrid in the middle, hair on the stamen stalks is still there, while hair on the ovary does not disappear but those present are reduced in length.

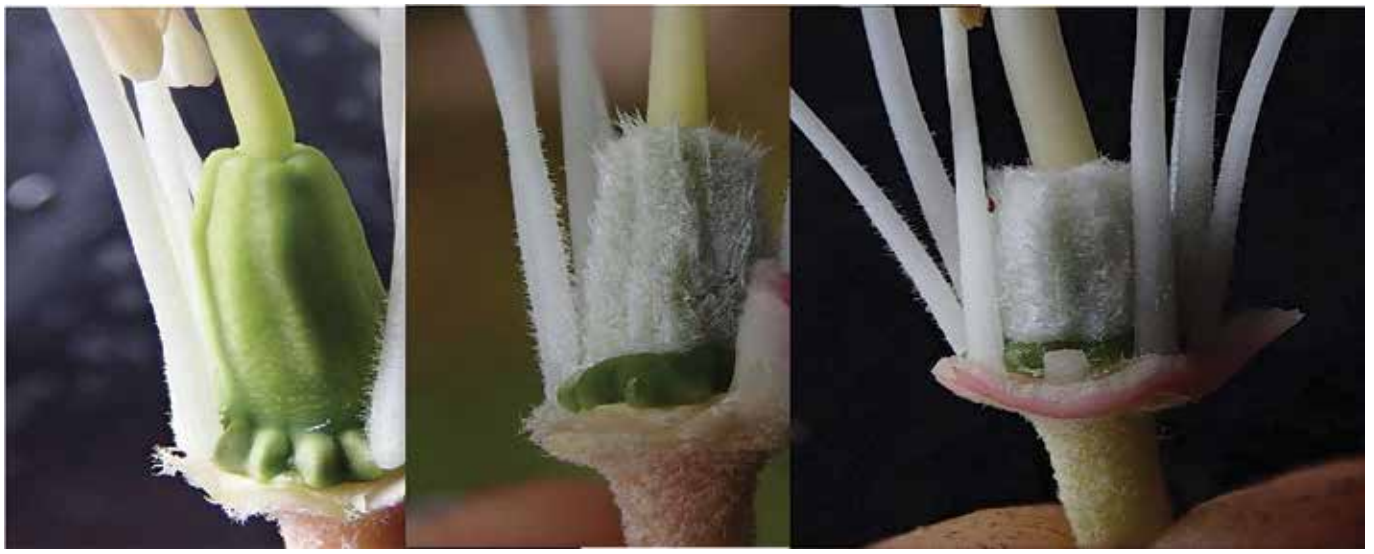

Figure 4. *R. galactinum, R. galactinum* x R. *degronianum* var. *yakushimanum* and *R. degronianum* var. *yakushimanum.* On the hybrid in the middle, hair on the stamen stalks remain. while hair on the ovary does not disappear but individual hairs there are longer.

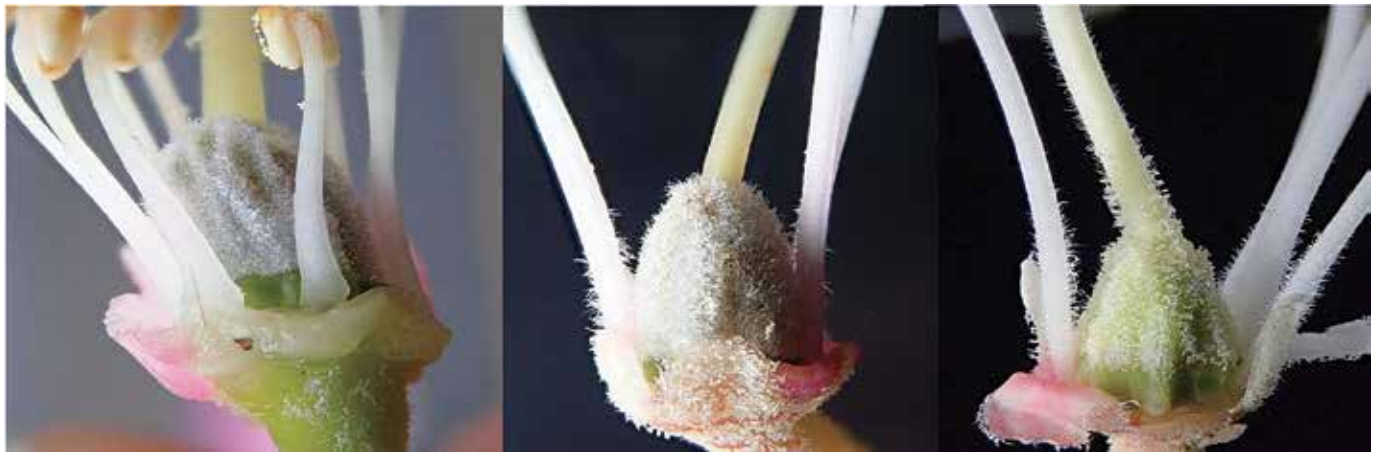

Figure 5. *R. argyrophyllum* subsp. *nankingense*, its hybrid with *R. elegantulum* and *R. elegantulum*. On the hybrid in the middle, it is seen that hair on the style has disappeared but on the stamen stalks is still there. Hair on the ovary did not disappear.

Figure 6. *R. orbiculare*, its hybrid with *R. wiliamsianum* and *R. wiliamsianum*. On the hybrid in the middle, glandular hairs on the stylus and ovary remain, but the hairs are reduced in length.

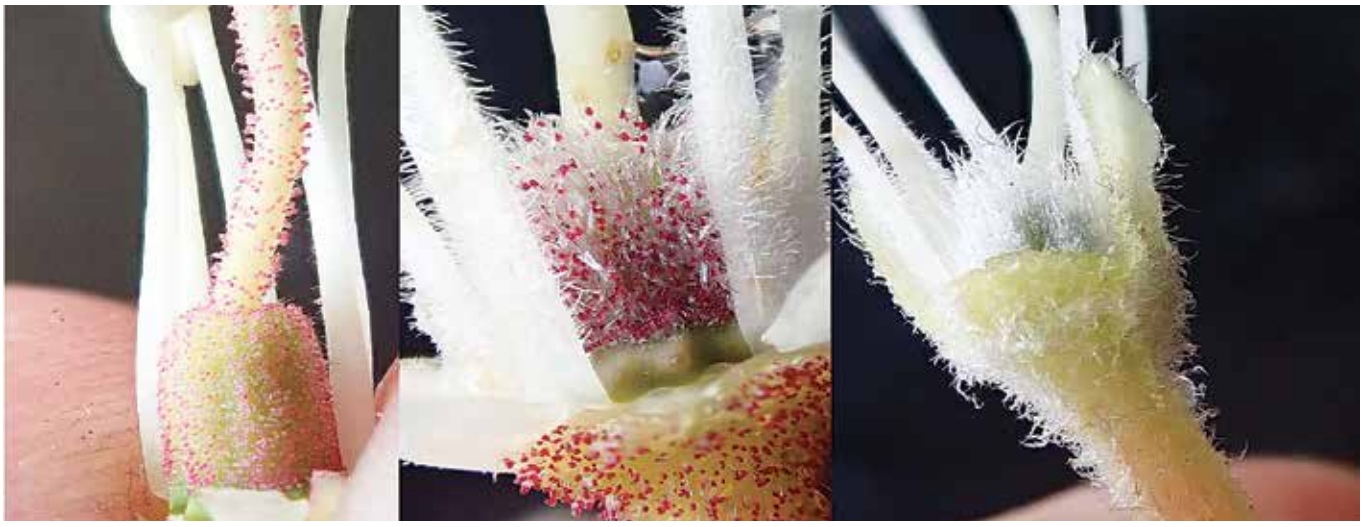

Figure 7. *R. vernicosum*, its hybrid with *R. faberi* and *R. faberi*. On the hybrid in the middle, glandular hairs on the style disappear but not those on the ovary, while the style hairs are glandular. The red color remains dominant. Hair on the Stamen hairs appear more robust on the hybrid.

Figure 8. *R. smirnowi*i, its hybrid with *R. pachysanthum* and *R. pachysanthum*. On the hybrid, style hairs have disappeared, while hairs remain on the stamen stalks (dominant and intermediaries) and there are intermediate-sized hairs on the ovary.

Figure 9. R. selense ssp. jucundum, hybrid, R. souliei. On the hybrid, it is found that glandular hairs on the style and stamens disappear. The ovary still has glandular hairs like the parents. The red color is dominant.

Figure 10. Taxonomers (not geneticists) have suggested *R. bonvalotii* is a hybrid between *R. selense* and an unknown species (possibly *R. souliei* or *R. vernicosum*). However, since *R. bonvalotii* has long glandular hairs on the style and there are none on *R. selense*, this hypothesis may be wrong. There are also no red glandular hairs on its style or ovary.

Conclusion

It seems that the inheritance of the hairs on the style versus stamen stalks and ovary is often different between species. Glandular hair is dominant on the ovary, but the number of hairs on the parent's stamens, style and ovary can vary from clone to clone, especially with *R. bureavii* (https://www.rhododendron.dk/cruentum-bureavii.html). Red color when present also seemed to be dominant. Glands and hairs on the style seem to be all less evident on primary hybrids, but on some crosses, long glandular hair (such as on *R. williamsianum*) disappears and only short stem glandular hairs are seen (Fig. 6).

The occurrence and the kind of hair on style can often reject a suggested parent combination and perhaps suggest that a suggested natural hybrid is not in fact a hybrid but may be a distinct species.

References

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Hans Eiberg is a member of the Danish Chapter and a recipient of the ARS Gold Medal in 2018.