

Discovery of *Brassica oleracea* var. *Botrytis* Linnaeus with a great deal of abnormal flowers in Wuhan, China

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Cauliflower (*Brassica oleracea* var. *botrytis* Linnaeus) is one of the varieties of *Cruciferae*, *Brassica*, *Brassica oleracea* L., is one of the most important vegetables of *Brassica oleracea* L. grown and consumed worldwide.

Cauliflower belongs to the family *Brassicaceae* and is one of the three diploid species of *Brassica* in the triangle of U (Shaw et al., 2021). It contains 'CC' genome and has nine pairs of chromosomes ($2n = 2x = 18$). *Brassica oleracea* and its C-genome wild relatives were diversified in the northeast Mediterranean region (Arias et al., 2014), brought to the east Mediterranean region and eventually spread throughout Europe and became fully domesticated.

Brassica is the most important and one of the largest genera, consisting of more than 300 families, of *Cruciferae* plants.

The flowers of *Cruciferae* plants have four petals arranged in a cross shape, and usually have six stamens. These four long stamens and two short stamens are called "taradynamous stamen" (Klepikova et al., 2021).

I planted two cauliflowers, and one of them produced a lot of abnormal flowers, including

figure 1: Normal plant



figure 2: Plants with abnormal flowers



figure 3: Five petals, seven stamens and five sepals.

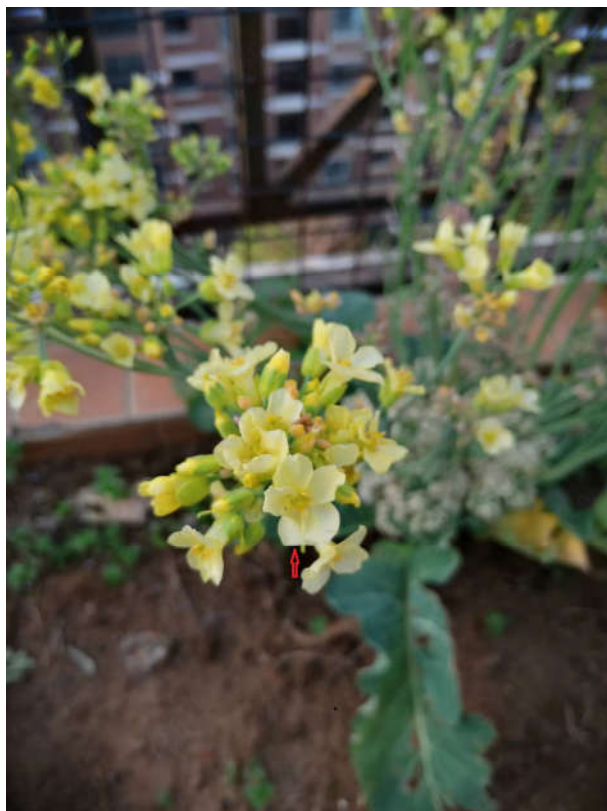


figure 4: Five petals, seven stamens and five sepals.



figure 5: Six petals, nine stamens and six sepals.



figure 6: Seven petals, nine stamens and seven sepals.



figure 7: Six petals, nine stamens and seven sepals.



References

- Arias, T., Beilstein, M. A., Tang, M., McKain, M. R., & Pires, J. C. 2014. Diversification times among Brassica (*Brassicaceae*) crops suggest hybrid formation after 20 million years of divergence. American journal of botany, 101(1), 86 – 91.
- Klepikova, A. V., Shnayder, E. D., Kasianov, A. S., Remizowa, M. V., Sokoloff, D. D., & Penin, A. A. 2021. lepidium-like, a Naturally Occurring Mutant of Capsella bursa-pastoris, and Its Implications on the Evolution of Petal Loss in Cruciferae. Frontiers in plant science, 12, 714711.
- Shaw, R. K., Shen, Y., Zhao, Z., Sheng, X., Wang, J., Yu, H., & Gu, H. 2021. Molecular Breeding Strategy and Challenges Towards Improvement of Downy Mildew Resistance in Cauliflower (*Brassica oleracea* var. *botrytis* L.). Frontiers in plant science, 12, 667757.