

The early history of tomato fruit morphology characteristics

Summary by Nic Welty

Tomato originated in the Andes mountain region of South America. Early domestication was undertaken by the Native Americans. The first encounter with tomato by Europeans appears to be during a voyage by Cortez in 1519, when he acquired some tomato plants in Mexico ([4](#)). The tomato was distributed throughout Europe in the years following. The tomato was actually taken by the Moors first through Spain, and then more widely distributed. The Moors' involvement resulted in one of the first European names for tomato; pome dei Moro (Moor's apple). The earliest European document that referred to tomato were by Italian Petrus Andreas Matthiolus in 1544 and named a cultivar pomi'd oro (golden apple) ([11](#)). The first fruit shape was described as being "flattened", "segmented" and of golden color rather than red ([11](#)). In 1554 Matthiolus noted a second variety equivalent in shape, but red in color ([12](#)). The previous year in Germany, 1553, George Oelinger (Nuremburg garden) documented the red faciated tomato. He illustrated the tomato plant and fruit in detail, and also noted the existence of two yellow varieties ([15](#)).

Oelinger's documentation indicated that the tomato was grown and observed for several years prior to the completion of the picture and manuscript. His illustration is very similar to many illustrations that appeared over the next two centuries. Several gardeners grew tomato in this time and region including Oelinger of Nuremburg, Vuoysselus of Breslau, Petrus Condenbergius of Antwerp, and Joachimus Kreichius of Torgau ([15](#)). In 1561 Gesnerus Condradus of Strasbourg noted the fruit shape to be round, similar to an apple, and of gold, red, or white color ([8](#)). The illustration by Oelinger matches a picture produced in 1585 by Duranti in Italy describing their tomato plant species ([6](#)). Tomato was used as food in Italy, but central and northern Europeans were cautious of the new fruit due to its odor and visual similarity to the poisonous nightshade.

Descriptions of tomato from the individual documents were very similar. Philip Miller (1731) published in his "Gardener's Handbook" in England a range of tomato; yellow love apple, red love apple, yellow cherry, and hard channeled fruit ([14](#)). However, there was clearly no mention of elongated or roma-shaped fruit. Shortly thereafter, Linnaeus documented tomato following the description given by many previous documents modeling Oelinger and Matthiolus, and also included a note that small (cherry) wild tomato had been grown for many years decoratively. In 1813 Dunal documented in "Solanum" the pear-shaped fruit and named it Lycopersicum piriforme, the earliest mention of a different shape of tomato (other than the wild cherry). Dunal also described L. pomiferum, cerasiforme, humboldtii, and noted "pomum-amoris."([5](#)) The 1824 "Practice of Gardening" noted the original description and added a large and small cherry as well as a red pear shaped fruit ([1](#)).

Beginning in the 1840's, the popularity of tomato grew over the next 50 years, particularly in America, and other regions in Europe where the tomato was previously not eaten or widely grown. In 1882, Erlangen noted three main fruit forms of *L. esculentum*; *typicum* (old-time shape), *cerasiforme*, and *pyriforme* (the most seldom used) (7). The Agriculture College of Michigan Bulletin of 1887 appears to include the first detailed separation of *L. esculentum*, *cerasiforme*, *pimpinellifolium*, and *piriforme* (2) (the only major distinction made since Dunal's work in 1813). An explosion of different fruit shapes appears to be first documented following the 1880's, and increased even more after 1900. LH Baily published on tomato in "The American Horticulture Journal" as early as 1900. His writings in the 1906 edition named the 19th century as the major time of development following 300 years of prior domestication. LH Baily described *L. esculentum* as two types; the smooth round hybrid (*L. esculentum* x *L. pimpinellifolium*) and ribbed old-time garden tomato. LH Baily also described *L. pyriforme* (pear, oblong) *L. pimpinellifolium* (round small), and *L. cerasiforme* (10). Gustav Hegi produced an illustration of flora of central Europe, beginning in 1900. His 1927 edition contained some pictures of elongated non-pear shaped fruit (9), similar in appearance to roma. However, Hegi noted that the majority of new development occurred in the decade prior to this publication.

References:

1. 1824 edition of Practice of Gardening (1824)
2. 1887 Agricultural College of Michigan Bulletin No. 31, p. 13-14 fig 2-11 (1887)
3. Berchtold & J.S. Prestl, Rostlin. i.t[49](1823)
4. Cox, Sam. Colorado State; From discovery to modern commercialism: The complete story behind *Lycopersicon esculentum* (2000)
5. Dunal, Maurella. Histoire Naturelle, Medicale et Economique des Solanum p. 112-114 (1813)
6. Durante, Castor. Herbario Nuovo. Roma, p 372 (1585)
7. Erlangen. Neue und empfehlenswerthe Pflanzen. Gartenflora Volume XXXI (1882)
8. Gesnerus, Conradus. Horti Germaniae. Argentorati [Strasbourg]. P. 273 (1561)
9. Hegi, Gustav, Illustrierte Flora von Mittel-Europa. V Band, 4 teiel. Munchen, (1927)
10. L. H. Bailey, Cycl. Amer. Hort. 956, 959(1906)
11. Matthiolus, Petrus Andreas. Di Pedacio Dioscoride Anazerbeo libri cinque della historia,et material medicinale trodottie in lingua vulgare Italiana. Venetia, (1544)
12. Matthiolus, Petrus Andrea. Commentarii in libros sex Pedaeii Dioscoridis Anazerbeii, de medica material. Venetiis, (1554)
13. McCue, George. The History and Use of the Tomato; An annotated Bibliography Vol 39, p289-348 (1952)
14. Miller, Philip. The Gardeners Dictionary. First edition, London, (1731)
15. Oelinger, Georg. Herbarium des Georg Oelinger. Anno 1553 zu Nurnberg. (1553)
16. Sickler, J.V. Garten-Handlexikon. Erfurt, (1811)