
Champagne wines before champagne: a morphometric perspective

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Abstract

The Champagne wine is worldwide renown for the production of the prestigious Champagne, a rosé or white sparkling wine. Champagne wine is made from three major grape varieties: Pinot noir, Pinot meunier and Chardonnay. Four other marginal varieties may also be included: Arbane, Petit Meslier, Pinot blanc and Pinot gris. According to a legend, dom Pérignon (1638-1715), a French cellarer Benedictine monk of the Hautvilliers Abbey, in the vicinity of Épernay, invented Champagne wine. He developed the blend of different wines, the control of the effervescence caused by the second fermentation, the clamping of the cork to the bottle and finally, the strengthening of the bottle itself. But the origins of Champagne are searching more previously, during the Middle Ages and antiquity. Elliptical Fourier transforms were used to describe the outline shape of 613 seeds, perfectly preserved in anoxic conditions, excavated from two archaeological sites in Reims and Troyes (1st – 15th centuries AD). The shape of these seeds were classified using a morphological referential including hundreds of modern seeds sampled from wild grapevine populations and grape varieties considered as "ancient" and "primitive" by the ampelography experts. This classification discriminates clearly wild from domesticated grapes. Among the cultivated varieties, several morphotypes corresponding to regional and/or parental groups, including notably that of Pinot. The longitudinal analysis reveal the significance of the wild grapevine as well as fluctuations of agrobiodiversity through time. An original dynamic, so far unsuspected, is highlighted

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