
Focus at 250 ka within the Neanderthal lineage: comparison of teeth from Biache-Saint-Vaast (Somme) and Payre (Ardèche) in France

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- 1 This study aims to compare two contemporary fossil remains from the Biache-Saint-Vaast (BSV) open-air site (North of France) and the Payre rock-shelter (South of France) dated at 250 ka. At BSV, skull fragments from 2 individuals and 11 maxillary teeth were discovered. At Payre, 13 teeth, 2 parietal fragments and 2 incomplete mandibles were unearthed. Our study focussed on the upper P3 and upper M2 which are represented in both sites considering: mesio-distal (MD) and bucco-lingual (BL) diameters, crown index, total computed crown base area, inner and outer dental traits and tissue proportions. The comparative sample consists of teeth (n=200 in total) from Middle Pleistocene populations, Neanderthals and *Homo sapiens*. Regarding the metrics, the UP3 and UM2 of BSV and Payre are very close. Both UP3s can be differentiated from Neanderthals by a larger MD diameter, falling within the upper range of the Sima de los Huesos teeth. The UM2s have different proportions, while in BSV the MD diameter is longer than the BL diameter, the opposite is true for Payre 12 which is within the variation of the Neanderthals, Krapina, Sima de los Huesos and Arago teeth, while BSV differs from the latter two in the low value of its cortical index. Morphological traits expressed at the enamel (OES) and dentine (EDJ) of the UP3s and UM2s of BSV and Payre are mainly similar to those expressed by the Neanderthal

group. Concerning enamel thickness, BSV teeth show a unique combination of thin (premolars) and thick (molars) enamelled dentition. These results highlight that the BSV and Payre fossils are part of the variation of Middle Pleistocene hominins displaying a significant number of Neanderthal traits and lacking others, as evidenced not only by the variation in dental characters, but also by certain cranial and mandibular features.

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