Archaeometric evidence of trade of leucite-bearing volcanic-made Roman mills of Pompeian style in NE Hispania (Spain)

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The leucite-bearing phonolitic and tephryphonolitic rocks of the ultraalkaline potassic province of Italy constitute a very characteristic volcanic suite unique in the circummediterranean region. These porphyritic rocks are easily recognizable in macroscopic samples by the presence of milimetric to centimetric-sized phenocrysts and glomerules of leucite, and under the microscope and with EMPA can be well characterized attending to their texture and to the mineral chemistry of their green clinopyroxenes. These kind of cereal roman mills have been detected in a large number (more than twenty) at the Pompei excavations, [1] and are widespread over the italian peninsula [2]as well as also noticed in some north african roman sites [3, 4]. In North Spain their presence has been postuled [4] in two very distant sites (Asturica Augusta in NW Spain and Emporium in NE Spain) but, as far we know, never proved archaeometrically or documented archaeologically.

The recent findings at Barcelona downtown excavations (former Barcino) and outskits (former Baetulo, now Badalona) and near to Caesaraugusta (now Zaragoza) [5] have been petrographically proved and compared (by EPMA study of the mineral chemistry of green clinopyroxenes) of the known outcrops of these types of lava flows in Italy (volcano of Vico, Bagnoreggio, Orvieto, Roccamonfina). All available data strongly supports an origin of the volcanic rocks employed in the mills at the Vulsino Volcanic District (Northern Roman Volcanic province, Italy), a fact that implies an specific and important trade way of heavy industrial instruments around I-II centuries AC.

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