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Systematics and environmental constrains of earliest brachyurans from the Bajocian, Middle Jurassic, of the north-eastern Iberian Peninsula

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The origin of brachyurans or true crabs is elusive. Recent phylogenies and trace fossils point to a Triassic origin, which differs from the fossil record suggesting an Early Jurassic origin. Brachyurans first diversified in the Middle Jurassic in the Tethys, but specimens from such interval are rare and most occurrences are reported from shallow marine oolitic limestones. Here we study the Bajocian (Middle Jurassic) siliceous sponge buildups developed in the proximal deep areas (c. 30–70 m) of a distally-steepened carbonate ramp in the central Iberian Basin (NE Spain), and provide new records of brachyurans from three new localities of the western Tethys. Described taxa include *Iberophthalmus leceraensis* Ferratges & Zamora gen. et sp. nov., ?*Pithonoton* sp., *Tanidromites ciceroides* Ferratges & Zamora sp. nov., *Tanidromites monevaensis* Ferratges & Zamora sp. nov., *Tanidromites* cf. *monevaensis* Ferratges & Zamora sp. nov., and *Tanidromites* cf. *raboeufi*. Although disarticulated, the material is well preserved and includes different anatomical parts suggesting parautochthony of the remains. Sedimentological analysis of the studied successions informs that the Middle Jurassic brachyurans in the western Tethys diversified in shallow marine environments with widespread colonisation of siliceous sponges and later disperse to a wide range of environments including coral and sponge buildups. The described material considerably increases the diversity of brachyurans from the Middle Jurassic supporting the Brachyuran Bajocian Expansion Event (BBEE).

Key words: Brachyura, benthos, siliceous sponge buildups, taxonomy, Bajocian, Jurassic, Spain.

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