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Calcified aquatic insect larval constructions in the Pleistocene tufa of Jebel El Mida, Gafsa, southern Tunisia: Recognition and paleoenvironmental significance

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1    **Calcified aquatic insect larval constructions in the Pleistocene tufa of**  
2            **Jebel El Mida, Gafsa, southern Tunisia: Recognition and**  
3            **paleoenvironmental significance**

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7    **Abstract**

8    Calcified aquatic larval cases were recognized and identified in the Pleistocene tufa masses of  
9    Jebel El Mida, Gafsa, southern Tunisia. These larval constructions belong to three main insect  
10   families: caddisflies (Trichoptera, Hydropsychidae), midges (Diptera, Chironomidae) and  
11   aquatic moths (Lepidoptera, Pyralidae) that inhabited tubes in the tufa and spun nets. Each  
12   insect community has its distinctive characteristics of larval constructions that allow their  
13   recognition. The larval constructions recognized comprise fixed and portable (for caddisflies)  
14   dwelling cases and silken retreats and feeding capture nets. These last-mentioned are almost  
15   completely eroded and only remnants are preserved. The spatial distribution of these larval  
16   cases within the tufa is not random but, rather imposed by some specific paleohydraulic  
17   conditions. It's the reason why aquatic insect larval constructions are considered as prominent  
18   tool for the reconstruction of tufa and travertine depositional environments. Chironomid fixed  
19   dwelling cases (diameters range from 0.6 mm for clustered tubes to 3 mm) indicate the  
20   deposition of tufa under lotic (flowing) or lentic (standing) water conditions. The later  
21   hydraulic condition is shared with hydropsychids with fixed retreats (0.2 to 4 mm in  
22   diameter). Portable case-building caddisflies (case length ranging from 5 to 20 mm, and  
23   diameter from 3 to 5 mm at the cephalic end) prefer lentic conditions and are almost

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