

## An annotated checklist of family Hydraenidae (Coleoptera: Staphylinoidea) in the North Africa

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### ABSTRACT

Data from previous literature were used to compile a checklist of the of north African hydraenid beetles. Members of Hydraenidae are mostly 0.5-3 mm in length and genitalia of different species under the same taxonomic group are almost indistinguishable. The external morphology of several taxa, e.g., *Ochthebiinae*, is largely variable. Mostly all the described genera or subgenera are with uncertain relationships in addition to the presence of many assigned but undescribed species. Here we summarize the recorded species of family Hydraenidae in the north Africa. The species distribution in the Palearctic region is provided. According to the analysis of literature a total of 15, 15, 61, 39 species were recorded in Algeria, Egypt, Morocco, Tunisia respectively. The genus *Ochthebius* was represented by 15, 13, 36, 16 species, while *Hydraena* by 19, 1, 15, 12 species, and *Limnebius* species was represented by 3, 1, 12, 6 species in Algeria Egypt, Morocco, Tunisia respectively.

**Keywords:** Minute Moss Beetles, checklist, distribution, Palearctic, Egypt, Morocco, Tunisia, Algeria

### INTRODUCTION

Hydraenidae (minute moss beetles) is an old and well-known aquatic beetles' family (Ponomarenko & Prokin, 2015), which belongs to suborder Polyphaga, Infraorder Staphyliniformia, Superfamily Staphylinoidea, order Coleoptera (Hansen, 1987). Approximately 1600 species under 42 genera have been identified within this family (Ślipiński *et al.*, 2011). The Palearctic region itself about 800 species (Jäch, 2004). About 1000 hydraenid species in 22 genera are undescribed yet (Epler, 2010; Jäch & Balke, 2008). In this work, a checklist of the Hydraenidae from Algeria, Egypt, Morocco, and Tunisia is provided with the valid names.

### MATERIALS AND METHODS

#### Biogeography (Fig. 1)

**Algeria (AL):** is located in the Maghreb

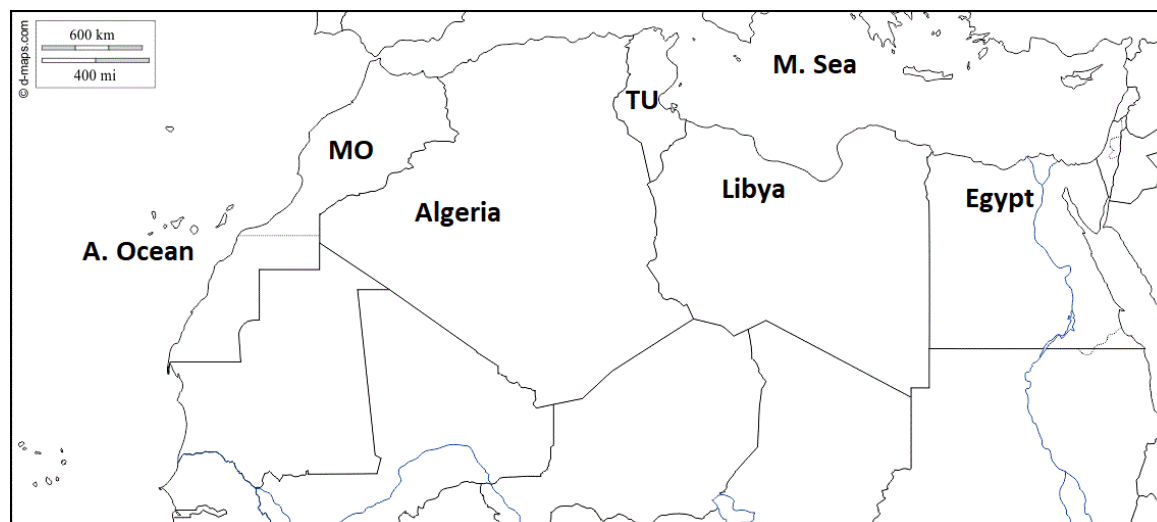
region of North Africa, between Tunisia (East), Morocco (West), on 2,381,741 square kilometers area.

**Egypt (EG):** is located in North Africa, between The Reda Sea (East), Libya (West), one million square kilometers area.

**Morocco (MO):** is located in the Maghreb region of North Africa, between Algeria (East), The Atlantic Ocean (West), on 710,850 square kilometers area.

**Tunisia (TU):** is located in the Maghreb region of North Africa, between Libya (East), Algeria (West), on 163,610 square area.

The present study includes all the valid names based on the recent catalogues, and literature of Hansen, 1998; Jäch, 2004; Touaylia *et al.*, 2011 Salah *et al.*, 2014; Mabrouki *et al.*, 2018; Lamine *et al.*, 2019.



**Fig. 1.** Map shows the North African Countries (Algeria, MO: Morocco, TU: Tunisia, Libya, Egypt).

## RESULTS AND DISCUSSION

The North African Hydraenidae beetle's family is divided into two Subfamilies; Hydraeninae and Ochthebiinae and it includes three genera; *Hydraena*; *Limnebius* and *Ochthebius*. Despite the huge number of Hydraenidae species all over the world, it is represented in the north Africa only by 97 species, without any previous record of these beetles from Libya (Table 1). So Hydraenidae taxonomic and

ecological studies need to be intensive to get the precise image of the number of genera and species of this family, and to protect their aquatic habitats from destruction. There are many taxonomic dilemmas in the taxonomic status of this family such as species complexes, genitalia similarities, and morphometric character variation among individuals of the same species, so beetle taxonomists should spot the light on this family in the future.

Table 1. The North African Hydraenidae beetle species.

	Species	AL	EG	MO	TU
1	<i>Hydraena africana</i> Kuwert, 1888	-	-	+	-
2	<i>H. algerina</i> Kaddouri, 1992	+	-	-	-
3	<i>H. allomorpha</i> Lagar & Fresneda, 1990	-	-	+	-
4	<i>H. antiatlantica</i> Jäch, Aguilera & Hernando, 1998	-	-	+	-
5	<i>H. atrata</i> Desbrochers d Loges, 1891	+	-	+	+
6	<i>H. audisioi</i> Jäch, 1992	+	-	-	-
7	<i>H. bedeli</i> Berthelemy, 1992	+	-	-	-
8	<i>H. bisulcata</i> Rey, 1884	-	-	+	-
9	<i>H. capta</i> d'Orchymont, 1936	-	-	+	-

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10	<i>H. chobauti</i> Guillebeau, 1896b	+	-	-	-
11	<i>H. cordata</i> L. W. Schaufuss, 1883	+	-	+	+
12	<i>H. exasperate</i> d'Orchymont, 1935	-	-	+	-
13	<i>H. explanata</i> Pic, 1905	+	-	-	-
14	<i>H. hernandoi</i> Fresneda&Lagar, 1990	+	-	+	-
15	<i>H. kocheri</i> Berthelemy, 1992	+	-	+	-
16	<i>H. kroumiriana</i> Kaddouri, 1992	-	-	-	+
17	<i>H. leprieuri</i> S.C Deville, 1905	+	-	-	+
18	<i>H. mouzaiensis</i> S.C Deville, 1909	+	-	-	+
19	<i>H. numidica</i> S.C Deville, 1905	+	-	-	+
20	<i>H. pallidula</i> S.C Deville, 1909	+	-	-	-
21	<i>H. pici</i> S.C Deville, 1905	+	-	-	+
22	<i>H. quadricollis</i> Wollaston 1864	+	+	+	+
23	<i>H. rigua</i> d'Orchymont, 1931	+	-	+	+
24	<i>H. riberai</i> Jäch, Aguilera & Hernando, 1998	-	-	+	-
25	<i>H. rivularis</i> Guillebeau, 1896	+	-	-	+
26	<i>H. scabrosad</i> 'Orchymont, 1931	+	-	+	+
27	<i>H. testacea</i> Curtis, 1830	+	-	+	+
28	<i>Limnebius aguilerai</i> Ribera & Millan, 1998	-	-	+	-
29	<i>L. alibei</i> Hernando, Aguilera & Ribera, 1999	-	-	+	-
30	<i>L. bacchus</i> Balfour-Browne, 1979	-	-	+	-
31	<i>L. evanescens</i> Kiesenwetter, 1866	+	-	+	-
32	<i>L. extraneus</i> d'Orchymont, 1938	-	-	+	-
33	<i>L. fretalis</i> Peyerimhoff, 1913	-	-	+	-
34	<i>L. furcatus</i> Baudi di Selve, 1872	-	-	+	+
35	<i>L. irmelae</i> Iach, 1993	-	-	-	+
36	<i>L. kocheri</i> Balfour-Browne, 1979	-	-	+	-
37	<i>L. maurus</i> Balfour-Browne, 1979	-	-	+	-
38	<i>L. mesatlanticus</i> Thery, 1933	-	-	+	-
39	<i>L. nitifarum</i> d' Orchymont, 1938	+	-	-	+
40	<i>L. oblongus</i> Rey, 1883	-	-	+	-
41	<i>L. perparvulus</i> Rey, 1884	-	-	-	+
42	<i>L. pilicauda</i> Guillebeau, 1896	+	-	+	+
43	<i>L. sanctimontis</i> Jäch, 1993	-	+	-	-
44	<i>L. theryi</i> Guillebeau, 1891	-	-	-	+
45	<i>Ochthebius abeillei</i> Guillebeau, 1896	-	+	+	-
46	<i>O. aeneus</i> Stephens, 1835	-	-	+	+
47	<i>O. auropallens</i> Fairmaire, 1879	+	-	+	+
48	<i>O. anxifer</i> Balfour-Browne, 1979	-	-	+	-
49	<i>O. bifoveolatus</i> Waltl, 1835	+	-	+	-
50	<i>O. bonnairei</i> Guillebeau, 1896b	+	-	+	+

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51	<i>O. corrugates</i> Rosenhauer, 1856	-	+	-	-
52	<i>O. cuprescens</i> Guillebeau, 1893	-	-	+	-
53	<i>O. difficilis</i> Mulsant, 1844	+	-	+	-
54	<i>O. dilatatus</i> Stephens, 1829	+	-	-	+
55	<i>O. exaratus</i> Mulsant, 1844	-	+	-	-
56	<i>O. eyrei</i> Jäch, 1990	-	-	-	+
57	<i>O. figueroi</i> Garrido Gonzalez, 1990	-	-	+	-
58	<i>O. fossulatus</i> Mulsant, 1844	-	-	+	+
59	<i>O. gauthieri</i> Peyerimhoff, 1924	+	-	+	-
60	<i>O. grandipennis</i> Fairmaire, 1879	+	-	-	-
61	<i>O. kieneri</i> Jäch, 1999	+	-	-	-
62	<i>O. lanarotis</i> Ferro, 1985	-	-	+	-
63	<i>O. libertarius</i> Aguilera, Ribera & Hernando, 1998	-	-	+	-
64	<i>O. lividipennis</i> Peyron, 1858	-	+	+	-
65	<i>O. mauretanicus</i> Jäch, 1990	-	-	+	-
66	<i>O. marinus</i> Paykull, 1798	-	-	+	-
67	<i>O. maroccanus</i> Jäch,1992	-	-	+	-
68	<i>O. mediterraneus</i> Ienietea, 1988	-	-	+	+
69	<i>O. meridionalis</i> Rey, 1885	-	+	+	-
70	<i>O. merinidicus</i> Ferro, 1985	-	-	-	+
71	<i>O. minerviussemechonitis</i> Jäch, 1998	-	+	-	-
72	<i>O. nanus</i> Stephens, 1829	-	-	+	-
73	<i>O. normandi</i> Jäch, 1992	-	-	-	+
74	<i>O. notabilis</i> Rosenhauer, 1856	-	-	+	-
75	<i>O. perpusillus</i> Ferro, 1985	-	-	+	-
76	<i>O. pilosus</i> Waltl, 1835	+	+	+	-
77	<i>O. poweri</i> Rey, 1870	+	-	-	-
78	<i>O. praetermissus</i> Jäch, 1991	+	-	+	+
79	<i>O. punctatus</i> Stephens, 1829	-	-	+	+
80	<i>O. quadrifossulatus</i> Waltl, 1835	-	-	+	-
81	<i>O. quadricollis</i> Mulsant, 1844	+	-	+	-
82	<i>O. quadrifoveolatus</i> Wollaston, 1854	+	+	+	-
83	<i>O. ragusae</i> Kuwert, 1887	-	+	-	-
84	<i>O. recurvatus</i> Jäch, 1991	-	-	-	+
85	<i>O. salinator</i> Peyerimhoff, 1924	+	+	+	-
86	<i>O. semisericeus</i> S.C Deville, 1914	-	-	+	-
87	<i>O. serratus</i> Rosenhauer, 1856	-	-	+	-
88	<i>O. silfverbergi</i> Jäch. 1992	-	-	-	+
89	<i>O. subpictussubpictus</i> Wollaston, 1857	-	+	+	-
90	<i>O. subinteger</i> Mulsant and Rey, 1861	-	-	+	-
91	<i>O. tacapasensis</i> Ferro, 1983	-	-	+	-

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92	<i>O. thermalis</i> Janssens, 1965	-	+	-	+
93	<i>O. tivelunus</i> Ferro, 1984	-	-	+	-
94	<i>O. tunisicus</i> Jäch, 1997	-	-	-	+
95	<i>O. velutinus</i> Fainnaire, 1883	+	-	-	-
96	<i>O. viridescens</i> Ieniște, 1988	-	+	+	+
97	<i>O. wewalkai</i> Jäch, 1984	-	+	-	-

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قائمه مرجعيه تفصيليه لفصيله هيدرينيدي ( غمديه الاجنحه: ستافيلونويديا) في شمال افريقيا  
احمد رضا إسماعيل\* ، حسن حمدنا لله فضل ، جوهره مجدي محمد ابوالحسن  
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تم استخدام البيانات من الكتالوجات السابقة لتجميع قائمة مرجعية لخنافس الهيدرينيدي في شمال إفريقيا. وطبقا لهذه البيانات فان فصيله هيدرينيدي تتمثل في شمال افريقيا بثلاثه اجناس وهم: هيدرينا ، ليمنيوس ، اكسوبيوس , حيث بلغ عدد الأنواع المسجله تحت جنس الهيدرينا 19 ، 1 ، 15 ، 12 , وجنس الليمنوبيس 3 ، 1 ، 12 ، 6 واخير جنس الاوكسوبيس 15 ، 13 ، 36 ، 16 نوعا في الجزائر ومصر والمغرب وتونس على التوالي.