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First report of four Curculionidae (Coleoptera) from center and northeast of Iran

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Abstract
Intensive sampling on Curculionidae biodiversity in two part of Iran Yazd province (Center) and Razavi Khorasan province (North-East) have been conducted. 27 species and 24 genus were identified, that 4 Species are reported as new records for Iranian fauna.

Keywords: Curculionidae, Iran, Yazd, New records, Razavi Khorasan

Introduction
Worldwide, the Curculionidae is one of the largest families of the order Coleoptera, represented by 4600 genera and 51000 species [4, 7]. This family is one of the largest taxonomic groups in Animalia kingdom [5] and is abundant and rich in species also in the fauna of Iran but it have been study poorly.
They are recognized by their distinctive long snouts and geniculate antennae with small clubs; beyond that, curculionids have considerable diversity of form and size, with adult lengths ranging from 1 to 40 mm (0.04 to 1.57 in).Weevils are almost entirely plant feeders, and most species are associated with a narrow range of hosts, in many cases only living on a single species [1]. With so many species to classify and over 400 genera, the taxonomy of this family is quite complicated, and authors disagree on the number and placement of various subfamilies, tribes, and subtribes. The phytophagous species are found on various plants. Often the weevil is strictly associated with a certain plant [8].

Materials and Methods
Specimens were collected by the first, second and third authors as a part of M.Sc. and Ph.D Thesis to study the insect biodiversity in Center and North-East of Iran.

Fig 1: Location of Yazd and Mahad district

The sampling procedure included recordings of location and coniferous tree species from which specimens were collected.

20-cm terminals of trees branches were cut randomly from four geographical positions in the top, middle and bottom parts of trees, or directly handed from Desert shrubs and transferred to the lab within plastic bags. Specimens were maintained in a 70% alcohol solution. All of species were send to Dr. Talamelli Fabio from Italy, for identification.
For each species, sampling location, host plant and position of specimens are given.

Results and Discussion

Family Curculionidae is a very large and important family of beetles. It has the highest number of species in the order Coleoptera, with a broad range of life histories and morphologies [3].

All Curculionids are vegetarian - mainly on plants, but a few eat fungus, and just a few are predatory. The females lay their eggs inside a plant by biting a hole first, or on their food plant. Most adults have the characteristic snout (also called the rostrum) with jaws at the end, and elbowed, clubbed antennae extending from the snout usually with 11 segments. Adults range in length, generally live in plants are usually short, round, fleshy, legless and milky coloured [2]. A total of 480 specimens were collected [6]. They belong to 26 species of Curculionidae from 25 genera. Four species could be considered as new record for Iranian curculionidae fauna and of them are new record respectively for Razavi Khorasan and Yazd province.

Table 1: List of the sampling localities in the Yazd province of Iran.

Code number	Locations	Coordinate of location	Altitude
01	Baghshadi jungle (Khatam)	29°48'27"N54°09'18"E	1916
02	Baghdad –abad (Mehriz)	31°35'42"N 54°24'37"E	1524
03	Darah (Mehriz)	31°35'78"N 54°16'18"E	1500
04	Fazayesabz park (Yazd)	30°05'33"N 54°23'33"E	1993
05	Gariz (Taft)	31°18'37"N 54°05'28"E	2006
06	Haroni (Abarkooh)	30°52'36"N 53°27'56"E	1465
07	Mazvir-Abad (Mehriz)	31°34'20"N 54°26'22"E	1478
08	Melat park (Abarkooh)	31°07'38"N 53°16'30"E	1517
09	Mongabad (Mehriz)	31°34'43"N 54°27'52"E	1457
10	Pozeh-neshkooh (Mehriz)	31°22'30"N 54°28'02"E	1834

Table 2: List of the sampling localities in the Razavi Khorasan province of Iran.

Code number	Locations	Coordinate of location	Altitude
11	Golha park	36°19'48"N59°30'12"E	1071
12	Daneshjo square	36°19'55"N 59°30'12"E	1073
13	Kohsangi park	36°16'56"N 59°35'10"E	991
14	Mellat Park	36°19'18"N 59°32'28"E	1040
15	Esteghlal square	36°19'34"N 59°32'34"E	1025
16	Laleh park	36°18'54"N 59°29'31"E	1087
17	Emamieh park	36°21'38"N 59°30'56"E	1053
18	Fareghotahsilanblv	36°20'52"N 59°27'34"E	1127
19	Ferdowsi University	31°07'38"N 53°16'30"E	1517

Table 3: List of collected species in Center and Northeast of Iran.

Species	Locations	Host Plant
Alcidoideskarelini Boheman 1844	Code 5, 19	*Amygdalus communis, F. excelsior*
Allomalia quadrivirgata Costa 1863	Code 19	*Fraxinus excelsior*
Anthonomus sp.	Code 10	*Amygdalus lycioides*
Apion frumentarium Linnaeus 1758	Code 7, 17	*Cynodon dactylon, Pinus mugo*
Aspidapion aeneum Fabricius 1795	Code 8	*Ulmus umbraculifera*
Aspidapion radiolus Marsham 1802	Code 15	*Pinus mugo*
Corimalia sp. cfr. Exsanguis Voss 1960	Code 19	*F. excelsior*
Corimalia sp. cfr. Helenae Korotayev 1996	Code 6	*Tamarix* sp.
Coniatus (Bagoides) schrenkii Capiomont 1868	Code 2	*Haloxylon ammodendron*
Ceutorhynchus pulvinatus Gyllenhal 1837	Code 19, 3	*F. excelsior*, *Triticum* sp
Geranorhinus sp	Code 6	*Tamarix* sp.
Hypophyse Cfr Minutissimus Tournier 1868	Code 6	*Tamarix* sp.
Hypera postica Gyllenhal 1813	Code 6	*Cynodon dactylon*
Ischnopterapion sp	Code 10	*Amygdalus lycioides*
Lixus (Dilixellus) pulverulentus Scopoli 1763	Code 12	*P. mugo*
Lixus (Broconius) rubicundus Zoubkoff, 1833	Code 13	*P. mugo*
Malvapionmalvae Fabricius 1775	Code 15	*P. mugo*
Metapiongaudiale Faust 1885	Code 19	*F. excelsior*
Polydrusus (*Scythodrusus*) *virbius* ?Reitter 1899	Code 9,8	*F. excelsior*, *U. umbraculifera*
Piazomiassemenovi Suvorov 1915	Code 5	*A. communis*
Rhynchites (Epirhynchites) lopatini Ter- Minassia	Code 1, 10	*A. lycioides, A. scoparia*
Rhopalapion longirostre Olivier 1807	Code 1	*A. scoparia*
Sibinia bipunctata Kirsch *1871*	Code 11	*P. mugo*
Smicronyx syriacus	Code 8, 11, 19	*P. mugo, F. excelsior, A. lycioides*
Sitona humeralis Stephens 1831	Code 6	*Medicago sativa*
Sitona fronto Faust 1883	Code 14	*P. mugo*
Sitona callosus Gyllenhaal 1834	Code 4	*F. excelsior*
Sitona macularius Marsham 1802	Code 16	*P. mugo*
Sitophilus oryzae Linnaeus 1763	Code 18	*P. mugo*
Tychius morawitzi Becker 1864	Code 19	*P. mugo*

New records for Iran

Superfamily Curculionoidea
Family Nanophyidae Gistel, 1848
Subfamily Corimaliinae Alonso-Zarazaga, 1989
Tribe Corimaliini *Alonso-Zarazaga,* 1989
Genus *Allomalia* Alonso-Zarazaga, 1989

***Allomalia quadrivirgata* Costa 1863**

Material examined: IRAN, Razavi Khorasan, Mashhad (code no. 11), 36°20'N 59°35'E, 1 ♂ 2 ♀♀, 9.vii.2013, leg. F. Khandehroo, on *F. excelsior*.

Genus *Hypophyes* Reitter, 1916

***Hypophyes minutissimus* Tournier 1868**

Material examined: IRAN, Yazd, Abarkooh, Haroni (code no. 05), 30°52'36"N 53°27'56"E, 3 ♂♂ 5 ♀♀, 6.vii.2014, leg. M. Zare Khormizi, on *Tamarix sp*.

Family Rhincodontidae Gistel, 1848
Subfamily Rhynchites Gistel, 1848
Tribe Ryhnchitini Gistel, 1848
Genus Ryhnchites D. H. Schnider, 1791

***Rhynchites lopatini* Ter-Minassian 1968**

Material examined: IRAN, Yazd, Khatam, Bagheshadi Jungle (code no. 01), 29°48'27"N54°09'18"E, 1 ♂ 2 ♀♀, 6.vii.2014, leg. M. Zare Khormizi, on *Amygdalus scoparia*. Mehriz, Pozehneshkoh (code no. 08), 31°22'30"N 54°28'02"E, 2 ♂♂ 4 ♀♀, 6.vii.2014, leg. M. Zare Khormizi, on *Amygdalus lycioides.*

Family Curculionidae Latreille, 1802
Subfamily Curculioninae Latreille, 1802
Tribe *Smicronyx* Seidlitz, 1891
Genus *Smicronyx* Schoenherr, 1843

***Smicronyx syriacus* Faust 1887**

Material examined: IRAN, Razavi Khorasan, Mashhad (code no. 11), 36°20'N 59°35'E
, 1 ♂ 2 ♀♀, 6.vii.2014, leg. M. Heidari Latibari, on *Pinus mugo*. Razavi Khorasan, Mashahad (code no. 12), 36°20'N 59°35'E, 1 ♂ 2 ♀♀, 6.vii.2014, leg. F. Khandehroo, on *F. excelsior*. Mehriz, Pozehneshkoh (code no. 08), 31°22'30"N 54°28'02"E, 2 ♂♂ 4 ♀♀, 6.vii.2014, leg. M. Zare Khormizi, on *Amygdalus lycioides*.

As Curculionidae fauna of many areas of Iran, has not been explored until now, further research will certainly add more species to this rich family.

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