

## A list of some Chrysomelinae (Col., Chrysomelidae) from Turkey. Part I. Leptinotarsa, Crosita and Chrysomela (= Chrysolina)

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### Summary

Overall 13 species of 3 genera of Chrysomelinae collected mostly from central Anatolia and also from other regions of Turkey were taxonomically studied. Redescription and figure of aedeagus of the holotype (male) of Chrysomela bruneli Demaison were presented for the first time. Chrysomela staphylea L. is a new record for Turkey. Chrysomela halysa s. str. Bechyne, 1950, Ch. halysa intercalaria Bechyne, 1950, Ch. rhodia Bechyne, 1950 and Ch. orientalis palaestina Bechyne, 1950 are proposed new synonyms for Chrysomela sahlbergi Ménétries, 1832.

### Introduction

Only one species of Leptinotarsa, 3 species of Crosita and 29 species of Chrysomela Linnaeus, 1758 (= Chrysolina Motschulsky, 1806) were previously recorded from Turkey (Fairmaire, 1866 and 1884; Demaison, 1896; Weise, 1882, 1884 a, b and 1916; Bodemeyer, 1900; Sahlberg, 1913; Breit, 1920 a, b; Winkler, 1932; Franz, 1938; Kerville, 1939; Bechyne, 1950; Medvedev, 1970 and 1975; Gül-Zümreoğlu, 1972; Tuatay et al., 1972; Kismalı, 1973; Tomov and Gruev, 1975; Gruev and Tomov, 1979).

The new material examined were essentially from Central Anatolia but the species found in Central Anatolia were also studied for the material from other localities of Turkey. Of Leptinotarsa and Crosita each has one species in Central Anatolia. One species of Chrysomela L. was here found a new record for Turkey and one previously recorded species a new synonym, thus the recorded number of Chrysomela species for Turkey remain 29, of which 10 species found to occur in Central Anatolia.

Abbreviations for the collection as follows: BG. Blagoy Gruev, Plovdiv, Bulgaria; HK. Halil Kasap, University of Çukurova, Adana; MZS. Zoological State Museum, Munich; MNP. National History Museum, Prague;

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PM. National Natural History Museum, Paris; OT. Orhan Tokmakoğlu, Sugar Institute, Ankara.

Leptinotarsa decemlineata (Say, 1824)

Locus typicus: N. America

Distribution: Cosmopolitan. Previous records from Turkey: Edirne, Bayramiç (Çanakkale) (Tuatay et al., 1972; Gül-Zümreoğlu, 1972).

Material examined: Maltepe (Ankara), 9.4.1977 1 ex.; Ayaş-İllica (Ankara), 14.5.1978 60 exs. on Solanum tuberosum; Çifteler (Eskişehir), 12.5.1979 2 exs. on Hyoscyamus niger, (HK).

Occurrence: Pest on potato (Solanum tuberosum), thus found in large numbers in potato fields.

Crosita salviae (Germar, 1824)

Locus typicus: "Ilyria"-Yugoslavia.

Distribution: Italy, The Balkans, Caucasia, Turkey, Syria (Weise, 1916; Winkler, 1932). Previous records from Turkey: Bilecik, Sultandağı (Afyon), Ankara, Bolkar Dağı-Maden (Bodemeyer, 1900; Kerville, 1939).

Material examined: Amasya, 1 ex. coll. J. Breit, (OT); Tire (İzmir), 5.5.1973 1 ex. on Juglans regio, (HK).

Occurrence: Rare

Chrysomela amasiensis Weise, 1894

Locus typicus: Amasya (Turkey)

Distribution: Turkey. Previous records: Amasya, Gölbaşı (Ankara) (Weise, 1894; Gruev and Tomov, 1979).

Material examined: Temelli Köyü (Ankara), 18.5.1977 1 ex., (HK). Ankara, 12.6.1962 leg. Seidenstuecker 1 ex.; Gölbaşı (Ankara), 13.6.1963 leg. Seidenstuecker 4 exs.; Çubuk Barajı I, 3.6.1963 leg. Seidenstuecker 1 ex. (MZS).

Occurrence: Not common.

Discussion: Ch. amasiensis, originally described by Weise (1894) from Amasya (Turkey), closely resembles Ch. marginata Linnaeus, 1758: in both species head finely punctured; elytra with 5 double rows of coarse punctures; antennal segments 1 and 2, elytral margins and epipleura yellowish-red, rest of the body shining black with bronze reflections.

Weise (1894) distinguished Ch. amasiensis in having the punctures of rows coarser than in Ch. marginata. It is here observed that Ch. amasiensis also differs with the deeply incised sublateral sulci on the pronotum while in Ch. marginata there are a few coarse punctures in the same area. The aedeagus of Ch. amasiensis, firstly figured here, is obviously different in structure from that of Ch. marginata (cf. Figs. 1 and 2).

Chrysomela bruneli Demaison, 1896

Locus typicus: Sivas (Turkey), designated here according to the label of the holotype.

Distribution: Turkey; Previous records from Tokat and Kayseri (Demaison, 1896).

Material examined: "Sivas, coll. Demaison 1 ex. Type", (PM).

Occurrence: It is an endemic species in Turkey and very rare.

Discussion: No specimen was collected by the author but the holotype (male), through the kindness of Dr. N. Berti of Natural History Museum, Paris, was examined on loan. As this rare species is known only from its original description, its redescription and the figure of aedeagus are first time presented below:

Head and pronotum finely punctured; pronotum parallel sided; pronotal disc margined by longitudinal sublateral depressions, deeply incised posteriorly but with coarse punctures anteriorly; elytra with rows of coarse punctures and interspaces of rows sparsely and finely punctured; elytra yellowish red with black longitudinal bands one along the suture, other along the middle of each elytron, rest of the body shining black; 6.2 mm in length; aedeagus as in Fig. 3.

Chrysomela coerulans Scriba, 1791

Locus typicus: Not known.

Synonymy: Chrysomela violacea Panzer, 1797; Chrysomela oblonga Duftschmidt, 1825; Chrysolina splendorifera Motschulky, 1860.

Distribution: Europe, Turkey and Caucasia (Weise, 1916; Winkler, 1932). Previous records from Turkey: Akbes (Hatay), Izmir, Tortum (Erzurum) (Fairmaire, 1884; Sahlberg, 1913; Medvedev, 1970).

Material examined: Ayaş (Ankara), 12.7.1978 2 exs. on Mentha pulegium (HK); Göle (Kars), 9.8.1968 leg. Achteilung-Naumann 4 exs., (MZS).

Occurrence: Rare

Chrysomela didymata Scriba, 1791

Locus typicus: Not known.

Synonymy: Chrysomela quinquejugis Marshall, 1802; Chrysomela geminata Stephens, 1834.

Distribution: Europe and Turkey (Weise, 1916; Winkler, 1932). Previous records from Turkey: Bilecik, Sultan Dağı (Afyon) Boz Dağ, Izmir, Ankara, Amasya, Karatepe and Kadirli (Adana) (Fairmaire, 1866; Weise, 1884 b; Bodemeyer, 1900; Kerville, 1939; Medvedev, 1970).

Material examined: Sivas, 18.6.1978 3 exs. on Hypericum sp., (HK). Amasya, 1888 leg. Korb 1 ex.; Akşehir (Konya), 1900 leg. Korb. 4 exs. (MZS).

Occurrence: Not common

Chrysomela gypsophilae Kuester, 1845

Locus typicus: Not known.

Synonymy: Chrysomela lucidicollis Kuester, 1845; Chrysomela rufomarginata Suffrian, 1851.

Distribution: Europe, Turkey, Caucasia, Iran, Syria and Algeria (Weise, 1916; Winkler, 1932; Franz, 1938; Bechyne, 1950). Previous records from Turkey: Boz Dağ, Bursa, Ayaş Dağı, Ankara, Akşehir, Amasya, Sertavul (Içel), Bolkar Dağı-Maden (Fairmaire, 1866; Bodemeyer, 1900; Franz, 1938; Tomov and Gruev, 1975; Gruev and Tomov, 1979).

Material examined: Beytepe Köyü (Ankara), 25.5.1977 1 ex. on Glacium corniculatum; Temelli Köyü (Ankara), 9.6.1977 1 ex. on Mentha pulegium; Çubuk Barajı II (Ankara), 25.4.1978 1 ex. on Linaria sp.; Hirfanlı Barajı (Kırşehir), 13.5.1979 9 exs. on Salvia sp., (HK).

Occurrence: Not common, usually in small numbers.

Chrysomela herbacea Duftschmidt, 1825

Locus typicus: Austria.

Synonymy: Chrysomela graminis Duftschmidt, 1825; Chrysomela fulminans Suffrian, 1951; Chrysomela ignita Suffrian, 1951; Chrysolina blanda Motschulsky, 1860; Chrysolina caucasica Motschulsky, 1860; Chrysolina recticollis Motschulsky, 1860; Chrysolina cribellata Motschulsky, 1860; Chrysolina fulgida Motschulsky, 1860; Chrysomela coeruleans Reitter, 1912 (nec Scriba, 1791).

Distribution: Europe, Siberia, Caucasia, Turkey (Weise 1844 a, 1916; Winkler, 1932; Bechyne, 1950). Previous records from Turkey: Edirne, Bilecik, Düzce-Akçam (Bolu), Trilye (Bursa), Istanbul, Izmit, Ankara, Sinop, Trabzon, Samsun, Boz Dağ, Zigana Dağı, Kop Dağı, (Erzurum), Bolkar Dağı, Maden, Sertavul (Içel), Eğridir (Isparta) (Fairmaire, 1866; Bodemeyer, 1900; Kerville, 1939; Medvedev, 1970; Kismalı, 1973; Tomov and Gruev, 1975; Gruev and Tomov, 1979).

Material examined and occurrence: Very common, usually found in large numbers on Mentha pulegium, M. spicata and in small numbers on Coronilla rostrata and various aquatic plants. In this study totaly 241 exs. were sampled to record the localities. In Central Anatolia, the adults appear on host plants from late April through September. Specimens were collected from the following localities: Beytepe Köyü, Ayaş, Bağlum Köyü, Lalahan, Elmadağ, Dodurga Köyü, Beynam, Karagöl, Kızılcahamam (Ankara), Kızılca, (Kırşehir); Boğazlıyan (Yozgat); Sivas (Paşabahçe), Küllük Köyü, Yıldızeli (Sivas); Nevşehir, Ürgüp, Hacibektaş (Nevşehir); Kayseri, Gezi (Kayseri); Eldivan, Kızılırmak (Çankırı); Ereğli, Kızılören, İçeri-Çumra (Konya); Çiftahan (Niğde); Sungurlu, Boğazkale (Çorum).

Chrysomela lurida Linnaeus, 1767

Locus typicus: Germany

Synonymy: Chrysomela striata Faurcroy, 1785.

Distribution: From Middle Europe through Turkey and Iran to Middle Asia (Weise, 1884 a; Breit, 1920 a, b; Winkler, 1932; Bechyne, 1950). Previous records from Turkey: Bolkar Dağı-Maden, Ankara, Kızılcahamam (Ankara) (Bodemeyer, 1900; Gruev and Tomov, 1979).

Material examined: Kızılcahamam (Ankara), 12.5.1977 1 ex.; Yerköy, Sekili (Yozgat), 7.5.1978 2 exs., (HK). Ulukışla (Niğde), 6.7.1967 leg. Seidenstuecker 1 ex.; Kızılcahamam (Ankara), 5.7.-24.6.1969 leg. Seidenstuecker 5 exs. (MZS).

Occurrence: Not common.

Chrysomela marginata Linnaeus, 1758

Locus typicus: Europe

Synonymy: Chrysomela songorica Gebler, 1843; Chrysomela sulcata Fischer, 1843; Chrysomela luteocincta Fairmaire, 1864; Chrysomela dierythra Rottbacher, 1871; Chrysomela purini Jacobson, 1895.

Distribution: N. Africa, Europe, Siberia, Russia, Turkistan, Turkey (Weise 1884 a, 1916; Winkler, 1932; Bechyne, 1950). Previous records from Turkey: Eğridir (Isparta), Van, Kars (Bechyne, 1950; Gruev and Tomov, 1979).

Material examined: Nevşehir (Centrum), 20.5.1978 1 ex.; Yıldızeli (Sivas), 14.6.1978 2 exs.; Çifteler Harası (Eskişehir), 17.5.1979 2 exs., (HK), collected on Artemisia and Matricaria spp. Eskişehir, 1906 5 exs.; Konya and Akşehir 1899 leg. Korb 7 exs.; Göle (Kars), 1965 leg. Achteilung and Naumann 82 exs.; Van, 1912 leg. Kulzer 13 exs.

Occurrence: Not common.

Chrysomela sahlberg Ménétrière, 1832

Chrysomela sahlbergi Ménétrière 1832: 235 (Locus typicus: Talys, Lenkoran, Caucasia).

Synonymy: Chrysomela cupreopunctata Reiche, 1858 Chrysolina halysa s. str. Bechyne, 1950: 127-129.

Locus typicus: Chtaura (Lebanon), syn. nov.

Chrysolina halysa assyrica Bechyne, 1950: 127-129.

Locus typicus: Baghdad (Iraq)

assyrica=sahlbergi: Iablokoff-Khonzorian, 1968: 260.

Chrysolina halysa intercalaria Bechyne, 1950: 127-129.

Locus typicus: Ordubat (Caucasia) syn. nov.

Chrysolina rhodia Bechyne, 1950: 127-129.

(Locus typicus: Rhodes), syn. nov.

Chrysolina orientalis palaestina Bechyne, 1950: 127-129.

(Locus typicus: Israel), syn. nov.

Distribution: Greece, Turkey, Caucasia, Syria (Weise, 1916; Bodemeyer, 1900; Sahlberg, 1913; Winkler, 1932; Medvedev, 1970).

Material examined: Atatürk Orman Çiftliği (Ankara), 6.7.1977 3 exs., (HK); Kızılcahamam (Ankara), 9.6.1978 2 exs., 25.5.1979 1 ex., (HK). Bledjik (=Bilecik), leg. Bodemeyer 3 exs., (MNP). Çifteler Harası (Eskişehir), 17.5.1979 39 exs., (HK). Tokat, Coll. Achard 16 exs., (MNP). Sivas, Yıldızeli (Sivas, 14.17.6.1978 4 exs., (HK). Konya, 1899 leg. Korb. 13 exs., 15.3.1906 1 ex., (MNS); Akşehir (Konya), 1900 leg. Korb 22 exs., 21.5.1926 leg. Kulzer 1 ex., 9.6.1963 4 ex. (MNS); Sultandağı Akşehir (Konya), 18.5.1979 2 exs. (HK). Bor, Gülşehir (Niğde), 13.5-21.6.1978 8 exs., (HK). Boğazlıyan (Yozgat), 21.5.1978 1 ex., (HK). Kızılca (Kırşehir), 13.5.1979 1 ex., (HK). "Smyrne (=Izmir), col. Achard 3 exs.", (MNP). Adana, col. H. Rolle 2 exs. 1907 leg. Royadjian 7 exs., col. Fleischer 1 ex., 1906 leg. Dr. Vaseley 1 ex., (MNP). "Cyprus-Larnaka, col. Siplichal-Obenberger 2 exs., (MNP); 'Cyprus-Mont Armanien, 3 exs., "(MNP)". Rhodes, leg. Bleuse col. Achard 1 male Typus, 1 male 1 female Paratypus, Chrysolina Rhodia" (MNP). "Anatolie, 1800 col. Achard 1 ex.", (MNP). Libanon-Chtarua, 1936 col. Dr. Jurajek 1 male (MNP-26364) Typus, 1 male (MNP-26369)-2 females (MNP-26365, 26366) Paratypus, Chrysolina halysa s. str.", "Beyrouth", 1 ex., (MNP). "Syria, leg. Bodemeyer 3 exs., col. Achard 3 exs.", (MNP). "Zopiani (Syria), 31.5.1926 leg. Kulzer 1 ex.", (MNP). "Mont Karmel (Israel), leg. J. Petrbak 1 female (MNP)-26358) Typus, Chrysolina orientalis palaestina", (MNP). "Iraq-Dohuk, 2.7.1977 leg. Topal-Zilahy 1 ex.", (BG). (Baghdad, col. Kololova 1 female (MNP-26379) Typus Chrysolina halysa assyrica", (MNP). "Persia-Sultanabad leg. Bodemeyer 13 exs.", (MNP). "N. Iran-Elburs Gb. leg. Bodemeyer 4 exs., col. Fleischer 1 ex.", (MNP). "Ordubat (S. Caucasia), co. Dr. Vaseley 1 male (MNP-26372) Typus 2 males, 2 females (MNP-26374-26375) Paratypus, Chrysolina halysa intercalaria", (MNP). Ordubat, VI. 1910 leg. Jurajek 2 exs.", (MNP). Erivan (Caucasia), col. Vaseley 2 exs., (MNP). "Caucasus-Markisch Gb., col. Leder-Reitter 3 exs.", (MNP). "Caucase, leg. Obenberger 2 exs.", (MNP).

Occurrence: Rather common. Some material were here collected on Ballota sp. and Taraxacum macrolepidium but most of the material on Graminae spp. by sweeping.

Discussion: Type materials, together with the new materials, of Ch. halysa s. str. Bechyne, 1950, Ch. halysa assyrica Bechyne, 1950, Ch. halysa intercalaria Bechyne, 1950, Ch. rhodia Bechyne, 1950 and Ch. orientalis palaestina Bechyne, 1950 were comparatively studied. There was no difference in the structure of aedeagi of all these forms (Fig. 10). The females have no spermatheca (ovo-viviparous). Bechyne (1950) did not properly describe the species and subspecies but only distinguished them in an identification key with diagnostic key characters i. e. relative shape and length of body, relative length of membranous wings, density and size of elytral punctures, brightness of pronotum and elytra. Re-examination of these characters in a large number of new materials and types neither showed any differences at the level of species or subspecies nor was found any other character of diagnostic value.

Iablokoff-Khnzorian (1968) already suggested that Ch. halysa assyrica should be a synonym of Ch. sahlbergi. It is here concluded that other forms Ch. halysa s. str., Ch. halysa intercalaria, Ch. rhodia, Ch. orientalis palaestina should also be new synonyms of Ch. sahlbergi.

Chrysomela staphylea Linnaeus, 1758

Locus typicus: Europe

Synonymy: Chrysomela cuprea De Geer, 1775; Chrysomela rubrocuprea Fourcroy, 1785; Chrysomela lapida Stephens, 1834.

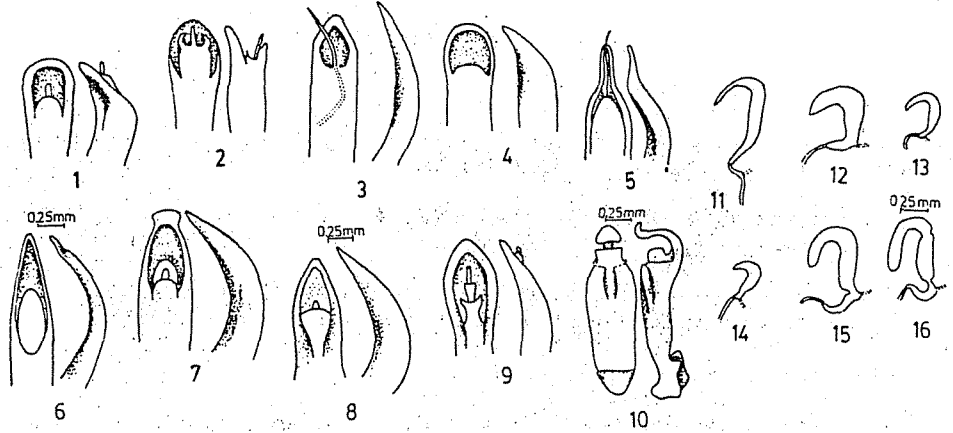
Distribution: Europe, Siberia, Middle Asia (Weise, 1884 a, 1916; Winkler, 1932; Bechyne, 1950). There is no previous record from Turkey.

Material examined: Beytepe (Ankara) 9.10.1978, 1 male (HK). As a New record to Turkish fauna was first reported by Kasap (1982).

Occurrence: Very rare.

Key to the Species of Chrysomela in Central Anatolia

1. Pronotum with wide and deep sublateral sulci strongly incised behind the middle and coarsely punctate in front..... 2
- Pronotum without the sublateral sulci or only with deep incisions behind the middle ..... 4
2. Whole body rufous; aedeagus, Fig. 1; spermatheca, Fig. 11..... Ch. staphylea Linnaeus
- Only elytra partly or completely rufous, body otherwise black with bluish or violet luster..... 3
3. Elytra black with lateral margins and epipleura reddish yellow, irregularly punctate; aedeagus, Fig. 2; spermatheca, Fig. 12; males 9-10 mm, females 10-12 mm ..... Ch. gypsophilae Kuester
- Elytra completely rufous or with a broad, common sutural and each elytron with a discal black longitudinal vitta, with faint violet luster; the punctures of elytra arranged in moderately regular longitudinal rows; aedeagus, Fig. 3; 6-7 mm ..... Ch. bruneli Demasion
4. Elytra entirely pale yellow or at least lateral margins and epipleura rufous... 5
- Elytra concolorous, entirely metallic green, blue or black..... 7
5. Elytra entirely pale yellow, the punctures in ten regular longitudinal rows; aedeagus, Fig. 4; spermatheca, Fig. 13..... Ch. lurida Linnaeus
- Elytra metallic green with slight bronze lusture, the lateral margins and epipleura rufous; the punctures of elytra in five double rows..... 6
6. Pronotal sublateral sulci shallow, marked only with a few large and deep punctures behind the middle; apex of aedeagus bottle shaped, Fig. 5; spermatheca, Fig. 14..... Ch. marginata Linnaeus
- Pronotum with the sublateral sulci deeply incised behind the middle; aedeagus regularly narrowed apically, Fig. 6..... Ch. amasiensis Weise
7. Pronotum without sublateral incisions; elytra confusedly punctured; spermatheca present..... 8
- Pronotum with a sublateral incisions behind the middle; elytral punctures arranged in five paired rows..... 9
8. Prosternal process with shallow, large and rugose depression; body metallic light green; apex of aedeagus widened at the tip (Fig. 7); spermatheca, Fig. 15; males 7.0-8.5, females 8.5-10.0 mm ..... Ch. herbacea Duftschmidt
- Prosternal process with a deeper and smooth depression; body metallic green, elytra with sutural and sublateral bands of bluish reflections; aedeagus gradually pointed, Fig. 8; spermatheca, Fig. 16..... Ch. coerulea Scriba
9. Body metallic blue; elytra finely punctured, the punctures distinctly arranged in rows, interstices very finely punctate; aedeagus as in Fig. 9; males and females 6.0-7.0 mm ..... Ch. didymata Scriba
- Body metallic dark green; elytral punctures very coarse and deep, each puncture placed in the center of a purple spot, the punctures indistinctly arranged in rows; aedeagus as in Fig. 10; males 6.9-8.6, females 7.2-9.7 mm .. Ch. sahlbergi Ménétrie



Figures 1-16. Aedeagi (1-10) and spermathecae (11-16) *Chrysomela* species.- (1) *Ch. staphylea*, (2) *Ch. gypsophilae*, (3) *Ch. bruneli*, (4) *Ch. lurida*, (5) *Ch. marginata*, (6) *Ch. amasiensis*, (7) *Ch. herbacea*, (8) *Ch. coeruleans*, (9) *Ch. didymata*, (10) *Ch. orientalis* (in each couple of figures, dorsal view stands on the left, lateral view on the right) (11) *Ch. staphylea*, (12) *Ch. gypsophilae*, (13) *Ch. lurida*, (14) *Ch. marginata*, (15) *Ch. herbacea*, (16) *Ch. coeruleans*

### Özet

#### Türkiye'den bazı Chrysomelinae (Col., Chrysomelidae) türleri. Part I. *Leptinotarsa*, *Crosita*, *Chrysomela* (=Chrysolina)

Çoğu iç Anadolu'dan, bazıları diğer bölgelerden toplanan *Leptinotarsa* ve *Crosita*'ya ait birer tür ve *Chrysomela*'ya ait 10 tür taksonomik olarak incelenmiştir. *Chrysomela bruneli* Demaison'un holotipinin aedeagusu incelenerek şekli ve türün yeniden tanımlanması ilk kez verilmiştir. *Chrysomela staphylea* L. Türkiye faunası için yenidir. *Chrysomela halysa* Bechyne, 1950, *Ch. halysa intercalaria* Bechyne, 1950, *Ch. rhodia* Bechyne, 1950 ve *Ch. orientalis palaestina* Bechyne, 1950 formlarının *Ch. sablbergi* Ménétries 1832'nin sinonimleri olduğu saptanmıştır.

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