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A new species *Bracon* (*Cyanopterobracon*) *subfallax* nov.sp. from Turkey (Hymenoptera, Braconidae, Braconinae)

Ahmet BEYARSLAN

Abstract

In this study a new species *Bracon* (*Cyanopterobracon*) *subfallax* nov.sp. has been described from the material collected from Central and South Anatolian regions of Turkey. The new species is described and its morphological diagnostic characters are illustrated and compared with the related species.

Key words: Braconidae, *Cyanopterobracon*, *Bracon*, new species, Turkey.

Zusammenfassung

Vorliegende Studie beschreibt die neue Art *Bracon* (*Cyanopterobracon*) *subfallax* nov.sp. aus Material, das in mittel- und südanatolischen Regionen der Türkei gesammelt wurde.

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Introduction

Bracon FABRICIUS, 1804 is a cosmopolitan genus with more than 880 described species worldwide, and its greatest success and diversity is seen in the Palaearctic region. *Bracon* FABRICIUS is a large genus divided into eighteen subgenera and it is represented in Turkish fauna with only *Bracon* FAHRINGER, *Glabrobracon* FAHRINGER, *Lucobracon* FAHRINGER, *Orthobracon* FAHRINGER, *Asiabracon* TOBIAS, *Cyanopteobracon* TOBIAS, *Rostrobracon* TOBIAS, *Habrobracon* ASHMEAD, *Pigeria* ACHRTERBERG and *Oscolobracon* PAPP (YU et. al. 2012).

The genus was reported to be represented in Turkey fauna with 160 species and among these, hosts of only 42 species are known (BEYARSLAN 1986a, 1986b, 1988, 1996, 1999, 2002a, 2002b, 2009, 2010, 2011, 2014, 2015, 2016; BEYARSLAN & CETIN ERDOGAN, 2010**,** 2011, 2012; BEYARSLAN et al. 2002a, 2002b, 2005, 2006, 2008, 2010, 2011, 2014; BEYARSLAN & FISCHER 1990; BEYARSLAN & TOBIAS 2008).

Bracon species are ectoparasites of larval stages of Coleoptera, Diptera, Hymenoptera and Lepidoptera. The females of genus *Bracon* lay their eggs on larvae of cryptobiotic plant pests insects. The developing Braconid larvae completes its development as a parasitoid of such insect hosts who dies eventually and such a role they undertake ensures the biological balance in nature. It is therefore Braconid species are one of the commonly used biological control agents. For instance, *Etiella zinckenella* (TREITSCHKE, 1832) (Lepidoptera, Pyralidae) lives in a wide region including Europe, Asia and western America. This lepidopteran species causes harms on fava bean (*Vicia* sp.), water melon (*Citrullus* sp.), black locust (*Robinia pseudoacacia*) and redbud (*Cercis siliquastrum*). *Bracon* (*Bracon*) *pectoralis* (WESMAEL, 1838) and *Bracon* (*Glabrobracon*) *variator* NEES, 1811 are used in biological control of this pest lepidopteran species (BARTLETT et al. 1978). *Bracon* (*Glabrobracon*) *obscurator* NEES, 1811 is another taxa used as a biological control agent against *Ips typographus* (LINNAEUS, 1758) (Coleoptera, Scolytidae) who leads to large amounts of damage on pine trees (*Pinus* spp., *Larix* spp., *Pseudotsuga* spp. and *Abies* spp.) (ELZINGA et al. 2007).

Here, a new species, *B.* (*C.*) *subfallax* nov.sp. is reported after evaluation of the material collected from Central and South Anatolian regions. The new species is described and its morphological diagnostic characters are illustrated and compared with the related species.

Material and Methods

Adult specimens of Braconinae were collected from various habitats of Central and South Anatolian regions between 2003 and 2009, to determine the Turkish Braconinae fauna. Sweeping nets were used to obtain samples on grass-type plants. Relevant literature (BEYARSLAN & FISCHER 1990; PAPP 1997, 2008; TOBIAS 1986) were used for taxonomical examination and identification of the specimens and distribution of species. Figures of the new species were drawn and measurements were taken using a camera lucida 5 attached to a stereomikroskop (Nikon SMZ 1000). Type material and other material are deposited in the collection of the Biology Department of Faculty of Science and Art, University of Bitlis Eren.

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The definitions, ratios and abbreviations follow those of van ACHTERBERG (1993). The following abbreviations are used in the text: OOL = ocellar-ocular line (shortest distance between ocellus and compound eye), POL = postocellar line (shortest distance between hind two ocelli); OD= maximal diameter of lateral ocelli. A= analis; C= costa; CU= cubitus; M= media; R= radius; SC= subcosta; SR= sectio radii (or RS of "radial sector" a= transverse anal vein; cu-a= transverse cubito-anal vein; m-cu= transverse medio-cubital vein; r= transverse radial vein; r-m= transverse radio-medial vein; pa= parastigma; pt= pterostigma.

2-CU1=second section of the cubital vein, 3-CU1=third secion of cubital vein, 1-M = basal vein, 2-M=second section of medial vein, 1-R1 = first section of the metacarpal vein, 1-SR+M = first section of the cubital vein, 2-SR = first transverse cubital vein, 2-SR+M= second transverse cubital vein, 3-SR = second section of the radial vein, SR1 = third section of the radial vein

Results

***Bracon* (*Cyanopterobracon*) *subfallax* nov.sp. (Figs 1-7)**

D e s c r i p t i o n . Female (holotype). Length of body 4.6 mm, of antennae 4.5 mm, of fore wing 4.5 mm, of hind wing 4.0 mm, of hind leg 4.6 mm, of mesosoma 1.8 mm, of metasoma 2.2 mm, of ovipositor sheath 1.0 mm.

Head. Subcubish, ratios of width: length: height of head = 60: 40: 50 (Fig 2). Antenna with 41 segments, first flagellomere 1.3 times longer than its width and as long as second flagellomere, penultimate antennal segment 1.6 as long as its width (Fig 1b, 3). Width of the hypoclypeal depression 0.5 times longitudinal diameter of eye and 1.1 times length of malar space; longitudinal diameter of eye 1.3 times longer than its transverse diameter; ratios of height of clypeus: inter-tentorial distance: tenterio-oculardistance = 5 : 25 : 9; length of maxillary palp 0.9 times height of head; width of face 1.3 times its height, face smooth and with long, white setae; height of eye : width of face : width of head= 30 : 32 : 59; vertex and frons smooth and glabrous with some white setae; length of eye 1.5 times as long as temple in dorsal view; ratios of OOL: OD: POL = 15: 5: 7; basal part of mandible microsculptured; temple smooth, shiny; length of malar space 2.0 times as long as basal width of mandible and 0.4 times longitudinal diameter of eye.

Mesosoma (Fig 1a, 4). Mesosoma approximately 1.9 times longer than height; pronotum and propleuron with very fine longitudinal carina, smooth; mesoscutum smooth, glabrous, with silvery setae; notauli uncertain; scutellar sulcus smooth, scutellum compressed, smooth and shiny; flange of metapleuron distinctly developed; metanotum smooth, shiny; surface of propodeum smooth and with silvery setae laterally.

Wings (Fig 1c, 5). Pterostigma almost triangular, length of pterostigma 2.8 times its maximal width and 4.10 times as long as parastigma, 1-SR+M straight and 2.00 times as long as length of m-cu; vein cu-a interstitial; ratio of r: 3-SR: SR1 = 13: 31: 65; CUlb very short, 3-CU1 0.80 times as long as m-cu; rations of 2- SR: 3-SR: r-m: 2-M: 2-SR+M= 10: 19: 9: 26: 4.

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Hind wing. Ratios of 1-SC+R: 2-SC+R: SC+R1: 1r-m: 1-M: M+CU: cu-a=55: 3: 16: 5: 33: 14: 7.

Hind leg (Fig 6). Hind coxa smooth, with long, whitish setae; femur weakly compressed; ratios of femur : tibia : basitarsus: tarsus of hind leg = 43: 60: 19: 50; length of femur, tibia and basitarsus of hind leg 3.4, 9.0 and 5.0 times their maximum width, respectively; length of hind tibial spurs 0.4 and 0.5 times hind basitarsus; length of longer fore tibial spurs 0.5 basitarsus, tibia and tarsus densely setose.

Metasoma (Fig 7). Length of first tergite 0.75 times its apical width and smooth; suture between 2nd and 3rd metasomal tergites deep and sinuate; medial length of 2nd tergite 0.4 times as long as medial length of 3rd tergite; all tergites smooth. Ovipositor sheath 0.45 times as long as metasomal length.

Colour. Yellowish red; only head, antenna, propleuron, mesopleuron, metathorax, propodeum, all coxae, basal half of fore femur, apical part of tibiae and tarsi of fore legs, basal half of middle and hind femura, basal seites of hind femura, apical part of middle and hind tibiae black; wing membrane very dark brown; pterostigma and veins brownish-black.

Male: Unknown.

Material examined. Holotype: Female (♀) – Niğde-Çamardı (Xeroeuxin provice with *Artemisia caucasica*, *Convolvulus assyricus*, *Fumana procumbens*, *Helianthemum canum*, *Pterocephalus pinardii*, *Acantholimon acerorum*, *Astragalus condensatus*, *Centaurea carduiformis*, *Galium incanum*, *Hedysarum varium*, *Crocus danfordiae*, *Androsace maxima*), (37° 49' 53" N, 34° 58' 58" E), 1600 m a.s.l., 4.7.2003, leg. H. Başibüyük. Paratype: Female. Kayseri, Kalkancık, (Xeroeuxin provice with *Salix caprea*, *Populus tremula*, *Prunus armeniaca*, *Beta vulgaris* Natural reeds, Umbellifera) (38° 53' 03" N, 35° 07' 31" E), 1142 m a.s.l., 12. 7.2007, 1♀, leg. A. Beyarslan. Isparta-Gölcük-Pilav Tepe, MT (Mediterranean provice with *Quercus* spp., *Pinus nigra*, *Astragallus* spp. Mixed weeds) (37° 47' 0" N, 33° 33' 0" E), 1551 m a.s.l., 4.8.2009, 1♀, leg. G. Japoshvili.

Etymology. The specific name is from the related species *Bracon* (*Cyanopterobracon*) *fallax* SZÉPLIGETI.

Differential diagnosis. *Bracon* (*Cyanopterobracon*) *subfallax* nov.sp. is related to *B.* (*C.*) *fallax* SZÉPLIGETI. These two species can be separated by the combination of following characters:

1 Medial length of 2nd tergite as long as medial length of third tergite; radial vein originating from middle of pterostigma and 0.40 times as long as 3-RS; 1-M 1.50 times as long as m-cu; body 3.4-6.0 mm.....*Bracon* (*C.*) *fallax* SZÉPLIGETI

- Medial length of 2nd tergite 0.40 times as long as medial length of 3rd tergite; Radial vein originating from middle of pterostigma and 0.50 times as long as 3-RS; 1-M 1.70 times as long as m-cu; forewing (Fig 5); body 3.4-6.0 mm.....*B.* (*C.*) *subfallax* nov.sp.

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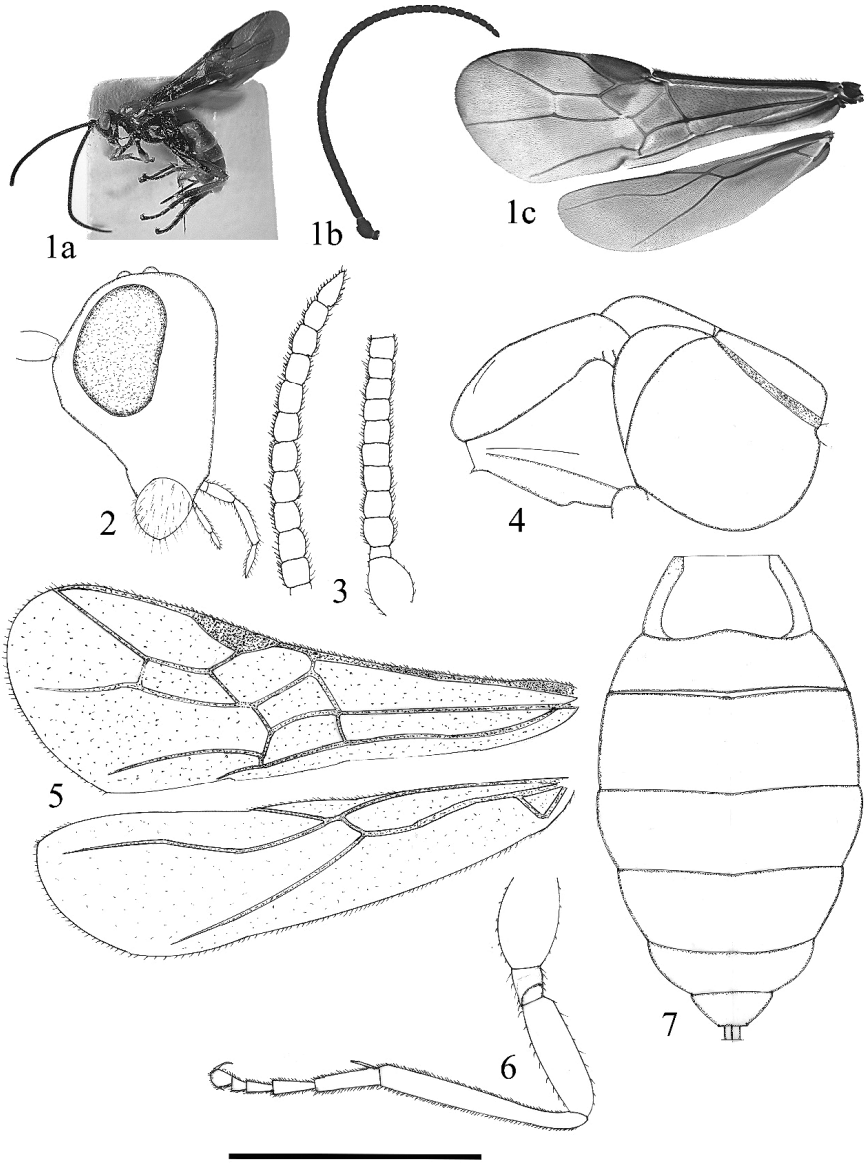

Figs 1-7: *Bracon* (*Cyanopterobracon*) *subfallax* nov.sp. (♀): (**1**) (1a. habitus lateral view, 1b. antenna, 1c. Wings); (**2**) head in lateral view; (**3**) antenna; (**4**) mesosoma in lateral view; (**5**) wings; (**6**) hind leg; (**7**) metasoma in dorsal view. Scale: 0.9 mm (Fig. 2), 2.5 mm (Fig. 4), 1.9 mm (Figs 3, 5 (hind wing 1.8 mm), (**6**), 1.1 mm (Fig. 7).

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References

BARTLETT B.R., CLAUSEN C.P., DEBACH P., GOEDEN R.D., LEGNER E.F., MCMURTRY J.A. & E.R. OATMAN (1978): Introduced parasites and predators of arthropod pests and weeds: A world review. Agricultural Research Service. United States Department of Agriculture. – Agriculture Handbook No. **480**, 545 pp.

BEYARSLAN A. (1986a): Investigations on species of *Bracon* F. recorded in Turkish Mediterranean region (Hym.: Braconidae: Braconinae) I. – Turk J Zool. **10**: 39-52.

BEYARSLAN A. (1986b): Türkiye'nin Akdeniz Bölgesinde saptanan *Bracon* F. (Hym.: Braconidae: Braconinae) türleri üzerinde araştırmalar II. – Ulusal Biyoloji Kongresi İzmir: 387-402.

BEYARSLAN A. (1988): Zwei neue Arten der Familie Braconidae (Hym.) aus der Türkei. – Z. Arb.gem. österr. Entomol. **39**: 71-76.

BEYARSLAN A. (1996): Vier neue Arten der Tribus Braconini (Hymenoptera, Braconidae, Braconinae). – Entomofauna **17**: 345-352.

BEYARSLAN A. (1999): Liste der Braconinae-Arten der Mittelmeer- und Marmara Region der Türkei (Hymenoptera: Braconidae). – Entomofauna **20**: 93-120.

BEYARSLAN A. (2002a): Four new species of the genus *Bracon* (Hymenoptera: Braconidae, Braconinae) from Turkey. – Biol Bratislava **57**: 139-146.

BEYARSLAN A. (2002b): Five new species of Braconidae from Turkey (Hymenoptera: Braconidae). – Entomofauna **23**: 189-200.

BEYARSLAN A. (2009): A new species *Bracon* (*Orthobracon*) *malatyensis* sp.n. Estern Anatolia (Hymenoptera: Braconidae: Braconinae). – J. Ent. Res. Soc. **11**: 31-36.

BEYARSLAN A. (2010): *Bracon* (*Glabrobracon*) *jenoi* sp.n. (Hymenoptera: Braconidae: Braconinae) from Turkey. – Biologia Bratislava **65**: 110-112.

BEYARSLAN A. (2011): Two new species, *Bracon* (*Lucobracon*) *kuzguni* sp.n. and *Bracon* (*Lucobracon*) *breviradius* sp.n. from Turkey (Hymenoptera: Braconidae: Braconinae). – Turk. J. Zool. **35**: 503-508.

BEYARSLAN A. (2014): Checklist of Braconinae species of Turkey (Hymenoptera: Braconidae). – Zootaxa **3790**: 201-242.

BEYARSLAN A. (2016): Taxonomical investigations on the Braconinae fauna (Hymenoptera, Braconidae) in north-eastern Anatolian region, Turkey, with a new species. – Zootaxa **4079** (1): 1-33.

BEYARSLAN A. & O. CETIN ERDOGAN (2010): New data on zoogeography and taxonomy of the East Black Sea Region species of Braconinae (Hymenoptera: Braconidae) in Turkey. – J. Ent. Res. Soc. **12**: 51-56.

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BEYARSLAN A. & O. CETIN ERDOGAN (2011): Subgenus *Osculobracon* (Hymenoptera: Braconidae: *Bracon*) of Turkey: New Distribution Records and Keys to Subgenera and Species. – J. Ent. Res. Soc. **13**: 69-76.

BEYARSLAN A. & O. CETIN ERDOGAN (2012). The Braconinae (Hymenoptera: Braconidae) of Turkey, with new locality records and descriptions of two new species of *Bracon* FABRICIUS, 1804. – Zootaxa **3343**: 45-56.

BEYARSLAN A., INANÇ F., CETIN Ö. & M. AYDOGDU (2002a): Braconidae Species of the Türkish Aegean Region. Parasitic Wasps: Evolution, Systematics, Biodiversity and Biological Control. – In: G. MELIKA & C. THUROCZY (editors), Hungary, 285-290.

BEYARSLAN A., INANÇ F., CETIN Ö. & M. AYDOGDU (2002b): Braconiden von den türkischen Inseln Imbros und Tenedos (Hymenoptera, Braconidae: Agathidinae, Braconinae, Cheloninae, Microgastrinae). – Entomofauna **23** (15): 173-188.

BEYARSLAN A., CETIN ERDOGAN Ö. & M. AYDOGDU (2005): A survey of Braconinae (Hymenoptera, Braconidae) of Turkish Western Black Sea Region. – Linzer Biol. Beitr. **37** (1): 195-213.

BEYARSLAN A., YURTCAN M., CETIN ERDOGAN Ö. & M. AYDOGDU (2006): A Study On Braconidae and Ichneumonidae from Ganos Mountains (Thrace Region, Turkey) (Hymenoptera, Braconidae, Ichneumonidae). – Linzer Biol. Beitr. **38** (1): 409-422.

BEYARSLAN A., AYDOGDU M. & Ö. CETIN ERDOGAN (2008): The Subfamily Braconinae in Northern Turkey, with new records of *Bracon* species for the Western Palaearctic (Hymenoptera: Braconidae**)**. – Linzer biol. Beitr. **40** (2): 1341-1361.

BEYARSLAN A., CETIN ERDOGAN O. & M. AYDOGDU (2010): A synopsis of Bracon species of Turkey with description of a new species (Hymenoptera: Braconidae: Braconinae). – Biologia Bratislava **65**: 104-109.

BEYARSLAN A., CETIN ERDOGAN Ö. & M. AYDOGDU (2011): A synopsis of Bracon species of Turkey with description of a new species (Hymenoptera: Braconidae: Braconinae). – Biologia **65**: 104-109.

BEYARSLAN A., GÖZÜAÇIK C. & I. ÖZGEN (2014): First research on Braconinae fauna of South-eastern Anatolia region with new localities of Turkey (Hymenoptera: Braconidae). – Entomofauna **10**: 177-204.

BEYARSLAN A. & M. FISCHER (1990): Bestimmungsschlüssel zur Identifikation der palaarktischen *Bracon*-Arten des Subgenus *Glabrobracon* TOBIAS (Hym.: Braconidae: Braconinae). – Ann. Nat. Hist. Mus. Wien **91**: 137-145.

BEYARSLAN A. & V.I. TOBIAS (2008): *Bracon* (*Lucobracon*) *iskilipus* sp.n. Hymenoptera: Braconidae: Braconinae) from the Central Black Sea Region of Turkey. – Biologia Bratislava **63**: 550-552.

ELZINGA J.A., ZWAKHALS K., HARVEY J.A. & A. BIERE (2007): The parasitoid complex associated with the herbivore *Hadena bicruris* (Lepidoptera: Noctuidae) on *Silene latifolia* (Caryophyllaceae). – J. Nat. Hist. in the Netherlands **41**: 101-123.

PAPP J. (1997): Taxonomic revision of seven European species of the genus *Bracon* FABRICIUS (Hymenoptera: Braconidae). – Folia Entomol. Hung. **58**: 115-135.

PAPP J. (2008): A revision of the *Bracon* (subgenera *Bracon* s.str., *Cyanopterobracon*, *Glabrobracon*, *Lucobracon*, *Osculobracon* subgen.n., *Pigeria*) species described by SZÉPLIGETI from the western Palaearctic Region (Hymenoptera: Braconidae, Braconinae). – Linzer Biol. Beitr. **40** (2): 1741-1837.

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TOBIAS V.I. (1986): Subfamily Braconinae. – In: MEDVEDEV G.S. (ed.), Keys to the Insects of the European Part of the USSR. Vol. **3**. Hymenoptera. Part 4. Nauka publisher, Leningrad, pp. 156-254.

van ACHTERBERG C. (1993): Illustrated key to the subfamilies of the Braconidae (Hymenoptera: Ichneumonoidea). – Zool. Verhandel. **283**: 1-189.

van ACHTERBERG C. & K. HORSTMANN (2012): Interactive Catalogue of World Ichneumonoidea, Taxonomy, biology, morphology and distribution. – Compact disc.

Author's address:

Prof. Dr. Ahmet BEYARSLAN

Department of Biology, Faculty of Arts and Sciences

Bitlis Eren University, 13000 Bitlis, Turkey

E-mail: abeyars@gmail.com

Druck, Eigentümer, Herausgeber, Verleger und für den Inhalt verantwortlich:
Maximilian SCHWARZ, Konsulent f. Wissenschaft der Oberösterreichischen Landesregierung, Eibenweg 6, A-4052 Ansfelden, Austria; maximilian.schwarz@liwest.at.

Redaktion: Fritz GUSENLEITNER, Biologiezentrum Linz, f.gusenleitner@landesmuseum.at
Roland GERSTMEIER, Lehrstuhl f. Zoologie, TU München, gerstmei@wzw.tum.de
Thomas WITT, Tengstraße 33, D-80796 München, thomas@witt-thomas.com
Berthold CLEWING, Akademischer Verlag München, avm@druckmedien.de
Harald SULAK, Museum Witt München, h.sulak@atelier-sulak.de.

Mitarbeiter: Karin TRAXLER, Biologiezentrum Linz, bio.redaktion@landesmuseum.at
Heike REICHERT, Museum Witt München, heike_reichert66@web.de
Erich DILLER, Zool. Staatssammlung München, erich.diller@zsm.mwn.de.

Adresse: Entomofauna, Redaktion und Schriftentausch Thomas WITT, c/o Museum Witt München, Tengstr. 33, 80796 München, Deutschland, thomas@witt-thomas.com;
Entomofauna, Redaktion c/o Fritz GUSENLEITNER, Lungitzerstr. 51, 4222 St. Georgen/Gusen, Austria, f.gusenleitner@landesmuseum.at.

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