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CRITICAL NOTES ON PAPAVER SECT.
PSEUDOPILOSA FROM CAUCASIA

Four taxa of *Papaver* sect. *Pseudopilosa* (*P. lateritium* K. Koch, *P. oreophilum* Rupr., *P. lisae* N. Busch, *P. monanthum* Trautv.) occur in Caucasasia and adjoining areas of Turkey and Iran. *Papaver talyschense* Grossh., also discussed, remains a dubious taxon and an unlikely member of this section. A nomenclatural synopsis is presented, mentioning types, and critical notes for each species are provided.

Մզարարյան Մ. Վ. Հննադարական դիփոդոթյուններ Կովկասի *Papaver* sect. *Pseudopilosa* սեկցիայի մասին: *Papaver* sect. *Pseudopilosa* սեկցիայի ներկայացուցիչների կարգաբանական ուսումնասիրության արդյունքում հայտնաբերվել է, որ Կովկասում, Թուրքիայի և Իրանի սահմանակից շրջաններում աճում են *P. lateritium* K. Koch, *P. oreophilum* Rupr., *P. lisae* N. Busch, *P. monanthum* Trautv. չորս տեսակները: Ենթադրվում է, որ *Papaver talyschense* Grossh. տեսակը չի պարկանում ավել սեկցիային: Ճշգրիտ է սինոնիմական, անվանակարգային սխալներ, ինչպես նաև բերվում են որոշ բննադարական դիփոդոթյուններ յուրաքանչյուր տեսակի համար:

Агабабян М. В. Критические замечания о *Papaver* sect. *Pseudopilosa* с Кавказа. В результате таксономического изучения представителей секции *Papaver* sect. *Pseudopilosa* выявлено произрастание на Кавказе и сопредельных областях Турции и Ирана четырех видов: *P. lateritium* K. Koch, *P. oreophilum* Rupr., *P. lisae* N. Busch, *P. monanthum* Trautv. Обсуждается также *Papaver talyschense* Grossh. и выражается сомнение о его принадлежности к данной секции. Уточнена синонимика, номенклатурные типы, а также приводятся некоторые критические замечания по каждому виду.

Introduction

Papaver sect. *Pseudopilosa* was first proposed by Popov (1937), with a description in Russian but not Latin, to include *P. monanthum* Trautv. and *P. oreophilum* Rupr., both treated in full, plus the non-Soviet *P. lateritium* K. Koch, *P. rupifragum* Boiss. & Reut. and *P. atlanticum* (Ball) Coss., mentioned as additional components. Günther (1975) validated Popov's sectional name by providing a Latin description, designating *P. rupifragum* as the type and adding one more species, *P. lisae* N. Busch, while excluding *P. monanthum* that he placed in *P. sect. Oxytona* (Bernh.) Pfeiff. (i.e., *P. sect. Macrantha* Elkan), which in agreement with Goldblatt (1974) he considered as closely related to and doubtfully distinct from *P. orientale* L. Another species that Grossheim (1950) had added to *P. sect. Pseudopilosa*, *P. talyschense* Grossh., he similarly excluded.

Kadereit (1988) did not formally accept Günther's section, but later (Kadereit 1996) he gave a full account of it, contrasting it against *P. sect. Pilosa* Prantl with which it had earlier been confused. He reverted exactly to Popov's original circumscription of the section but adopted a broader species concept, treating *P. oreophilum* as a synonym of *P. lateritium*, and *P. monanthum* as a subspecies of the latter. He failed to mention *P. talyschense* and suggested, following Wendt's unpublished PhD thesis of 1976, that *P. lisae* might constitute a separate, still unnamed section of its own. The fact that he had only limited access to material in Russian and Caucasian herbaria may serve to explain his but sketchy notion of the eastern taxa of the group.

Mikheev (1993), limiting himself to the Caucasus region, recognised 3 species in *P. sect. Pseudopilosa* – *P. lisae*, *P. lateritium* (including *P. oreophilum*), and *P. talyschense* – but included *P. monanthum* in *P. sect. Macrantha*, agreeing with Günther (1975) on that account, and treated it as doubtfully distinct from *P. paucifoliatum* – while disregarding the fact that the latter is, nomenclaturally, junior to the former.

In short, there is substantial disagreement among the authors cited above concerning the delimitation of *P. sect. Pseudopilosa* as well as the number and status of the taxa it includes. As a first step toward elucidating these questions, I present here a synopsis of the Caucasian taxa that were

at some point assigned to this section, together with their synonymy, nomenclatural types, and critical notes.

Material and Methods

The present study is based on material kept in the herbaria B, G, ERE, ERCB, LE, P, PAL-Gr, TBI, TGM and the private herbarium of G. Parolly, and on live plants grown in the Botanic Garden Berlin-Dahlem as well as in the field. We have seen original material for almost all names of the taxa involved.

Results

Papaver sect. *Pseudopilosa* Popov [in Komarov, Fl. S.S.S.R. 7: 621, nom. inval.] ex K.-F. Günther 1975, in Flora 164: 436.

Type: *P. rupifragum* Boiss. & Reut.

1. *Papaver lateritium* K. Koch 1855, Ind. Sem. Hort. Berol. 1855 (App.): 14.

Protologue provenance: "In valle fluminis Tschoruck Armeniam a montibus ponticis separante a. 1843 collectum et nunc in horto botanico cultum."

Lectotype (Kadereit, 1996): "*Papaver lateritium* C. Koch, Tschoruckthal, K. Koch" [manu Koch] (B!), Fig. 1.

Endemic to the Rize region in Turkey. Treated as including the next following species by Mikheev (1993) and Kadereit (1996), but distinct on account of its denser indumentum, wider leaves (lanceolate in outline) and elongate, clavate capsules.

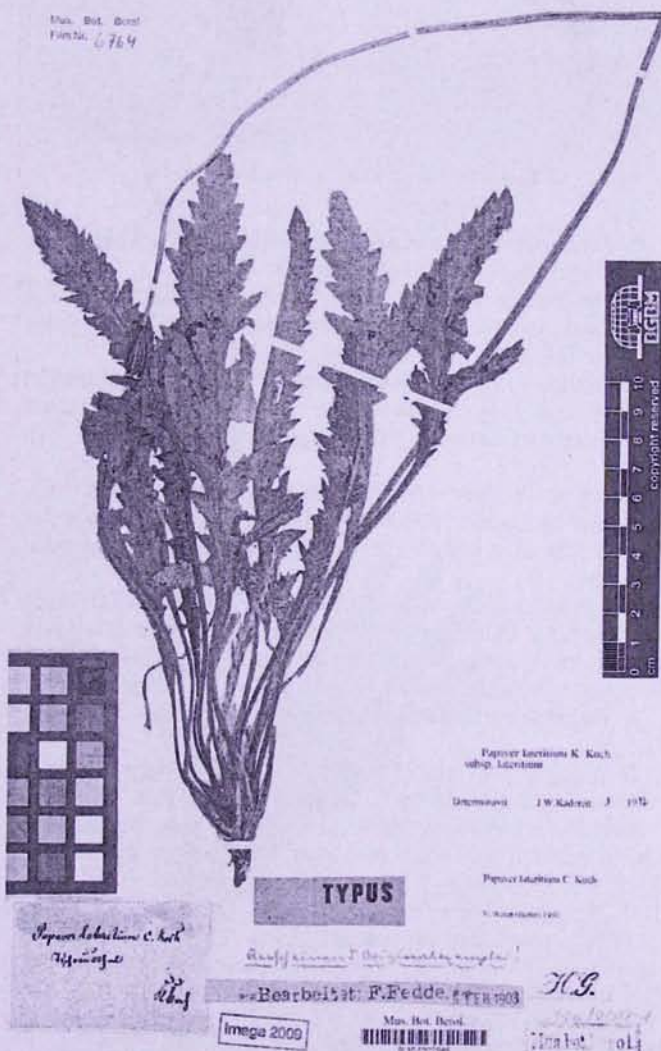


Fig. 1. Lectotype of *Papaver lateritium* (B).

Fig. 2 Holotype of *Papaver oreophilum* (LE).

2. *Papaver oreophilum* Rupr. 1869, Mém. Acad. Imp. Sci. Saint-Petersbourg, ser. 7, 15 (2): 15.

Protologue provenance: "Ossetia: in regione alpina montis Mamisson, in declivitate Ardonensi supra pag. Kalaki, inter 1400 et 1500 hex. parce, 7 Sept. flor. et deflor. legi."

Holotype: "*Papaver mamissonis* Rupr., m. Mamisson supra Kalaki 1400–1500 hex. [manu Ruprecht], Caucasus, distr. Alagir et Radscha. 1861 Sept. [printed] 7" (LE!), Fig. 2.

There is a second specimen kept in the type folder (LE), collected by Radde and identified by Ruprecht as *Papaver oreophilum* at a later date. It is not a part of the original material.

Endemic to the central part of Main Caucasus (Georgia and Russia). Differing from the closely related foregoing species by its sparse indumentum, narrower leaves (linear-lanceolate in outline), and shorter, wider capsules.

3. *Papaver lisae* N. Busch, 1926, Trudy Bot. Muz. 19: 82.

Protologue provenance: four syntype specimens cited, all collected in Balkharia by E. & N. Busch in 1925.

Lectotype (Mikheev 1993: 117): "Балкария, Рцывашки. Среди камней на субальпийском лугу, уроч., Урта-Тала, 2018 м", 28.6.1925. Е. Буш и Н. Буш, N 11 (LE!), Fig. 3.

= *P. oreophilum* var. *obtusifolium* N. Busch, 1905, Fl. Cauc. Crit. 3 (4): 45 *P. monanthum* var. *obtusifolium* (N. Busch) Fedde, 1909, in Engler, Pflanzenreich 40: 363.

Protologue provenance: "А. М. Балкария, ледник Рцывашки. 7–9000'. 28.VII.92. fl.fr. imm.; 29.VII.93. fl. fr. imm. Акинф[иев]."

Lectotype (designated here). "I. Akinfiew, Herbarium caucasicum 1882–1897. *Papaver lateritium* Koch var. *monantha* Trautv. Caucasus, Balkaria, 9000', Rtstiwaski", 29.7.1893, I. Akinfiew (LE!, isolecto LE!).

A local endemic of Balkaria, North Central Ciscaucasia, Russia. The species is surprisingly similar to the NW African *P. atlanticum*. Despite former uncertainties regarding its sectional placement (see below), it is probably best maintained in *P.* sect. *Pseudopilosa*.

4. *Papaver monanthum* Trautv. 1866, Bull. Acad. Imp. Sci. Saint-Petersbourg 10: 393 *P. orientale* var. *monanthum* (Trautv.) Trautv. 1876, in Trudy Imp. S.-Peterburgsk. Bot. Sada 4: 346 *P. oreophilum* var. *monanthum* (Trautv.) Buser 1888, in Boissier, Fl. Orient. Suppl.: 23 *P. lateritium* var. *monanthum* (Trautv.) N. Busch, 1905, Fl. Cauc. Crit. 3 (4): 45 *P. lateritium* subsp. *monanthum* (Trautv.) Kadereit 1996, in Edinburgh J. Bot. 53: 305.

Protologue provenance: "In montibus Schambobell".

Lectotype (Mikheev 1993: 118): "*Papaver monanthum* Trautv. 1866 [manu Trautvetter], Schambobell Geb., 9.7.1865, G. Radde 117 [manu Radde]" (LE!). Fig. 4.

Endemic to the southern part of central Transcaucasia, from Shambobell Mts. (Georgia) eastward to Lake Sevan (Armenia), and extending to Turkey (Artvin Province), growing in subalpine meadows at c. 2000 m of altitude. A few records from outside the mentioned area, as mapped in Grossheim (1950), have not been checked by me and require confirmation.

Papaver monanthum has been included at infraspecific rank in widely different species, *Papaver lateritium* or *P. oreophilum* and *P. orientale* or *P. paucifolium*, but is clearly an autonomous species, well characterised as follows. The plants lack a leafy stem, the yellowish red, unspotted

Fig. 3. Lectotype of *Papaver lisae* (LE).

flowers are borne on scapiform pedicels arising from the basal rosette of lanceolate, dentate or irregularly pinnatifid leaves, the anther filaments are yellow, filiform, and the capsule is broadly obovoid to subglobose.

In St. Petersburg (LE) there are two sheets of original material, both collected by Radde on 9.7.1865 but with different collector's numbers. A third sheet, also collected by Radde in the Shambobel Mts., dates from 5.7.1874, later than the protologue publication. A Radde specimen in Tbilisi (TBI) from the same area is undated. It was not annotated by Trautvetter and cannot be considered an isosyntype, less so since it represents a different taxon of uncertain identity, possibly of hybrid origin.

5. *Papaver talyschense* Grossh. 1919, Vstn. Tiflissk. Bot. Sada 46-47: 68.

Protologue provenance: "Talysh in m-te Kyz-jurdy, 8000', prope custodium n° 1, in declivibus graminosis, 23-VII-17 ab A. Grossheim lecta".

Holotype: *Papaver talyschense* sp. nova, Prov. Baku, distr. Lenkoran, in m-te Kyz-jurdy, 8000', prope custodium n° 1, In declivibus graminosis, 23.07.1917, A. Grossheim [manu Grossheim] (TBI!)

Grossheim (1950) and Mikheev (1993) placed *Papaver talyschense* in *P. sect. Pseudopilosa*, whereas Popov (1937) considered it as a doubtful species of unknown affinity. It is so far known only from the holotype, an incomplete specimen consisting of the upper part of a plant with clavate capsules on a long pedicel, and a stigmatic disk with 6-7 free lobes, but lacking petals and stamens, as confirmed by Grossheim (1928, 1950) himself who writes that the flowers are unknown. Karjagin (1953) adds no supplementary data. No one has explicitly claimed that the plant is perennial, and Popov indeed hypothesised that it might belong in some annual section. Several specimens in St. Petersburg (LE, Caucasian section) filed under the name *P. talyschense* are clearly do not belong to the same taxon as the holotype.

Discussion

Four perennial sections of *Papaver* are currently recognised. Accepting Kiger's (1985) nomenclature, they are: *P. sect. Macrantha*, sect. *Meconella* Spach, sect. *Pilosa*, and sect. *Pseudopilosa*. They all appear to be closely interrelated, and the difficulty of delimiting them is underscored by the fact that the sectional position of some species has shifted repeatedly.

The extreme example is that of *P. lisae*, originally described as a form of *P. (sect. Pseudopilosa) oreophilum*, then treated as a variety of *P. (sect. Pseudopilosa) oreophilum*, later included in *P. sect. Pilosa* by Fedde (1909), in *P. sect. Scapiflora* Elkan (i.e., sect. *Meconella*) by Popov (1937), in *P. sect. Pseudopilosa* by Günther (1975) and Mikheev (1993), and suspected to constitute a section of its own by Kadereit (1996), following Wendt (unpublished).

Similarly, *P. monanthum* was placed in *P. sect. Pilosa* by Fedde (1909), in *P. sect. Pseudopilosa* by Popov (1937) and Kadereit (1996), and in *P. sect. Macrantha* (formerly sect. *Oxytona*) by Goldblatt (1974), Günther (1975), and Mikheev (1993).

The main difficulty resides in the paucity and scant reliability of the characters that have been used for the purpose of defining the sections. Setting aside phytochemical features (which show promise but suffer from uncertainty as to the correct identification of the plant material used) and ITS (nuclear DNA) sequence data, which according to Kadereit (1996) support the sectional classification but have apparently never been published, the characters used so far, all morphological, are: growth form, leaf dissection, veneration of

leaves, inflorescence architecture, petal and filament colour, and capsule shape.

Popov (1937) originally defined *Papaver* sect. *Pseudopilosa* on the basis of leaf dissection and inflorescence structure; characters that are highly variable and of scant usefulness at sectional level – which is why several subsequent authors failed to grant recognition to Popov's section. It was redeemed by Günther (1975), who characterised it by growth form (the main subject of his study, but ecotypically very plastic), leaf veneration, and capsule properties; as the two latter features were not discussed in the two published portions of Günther's thesis (the third, which may have dealt with them, was never printed), we are left to guess what exactly he had in mind. Finally, the basic criterion used by Kadereit (1988, 1996) to define and group his sections is the colour of the staminal filaments.

Leaf veneration calls for some comment, which at this stage must remain preliminary. Günther (1975: 408, 409) incidentally notes that it is convolute in both *Papaver* sect. *Pilosa* and *P. sect. Lasiostrachyphylla* (Bernh.) Pfeiff. (i.e., sect. *Meconella*) but revolute in *P. sect. Pseudopilosa*. He indeed uses this criterion to support his transfer of *P. lisae* to the latter section. Kadereit (1996) confirms the validity of the character but adds no comment of his own. No one to our knowledge has, so far, mentioned to the leaf veneration type found in *P. sect. Macrantha*. On a preliminary check on winter buds of live plants cultivated in the Botanic Garden Berlin-Dahlem, we found that *P. pseudoorientale* (Fedde) Medw., of the latter section, shows the revolute veneration type, which is consistent with its affinity with *P. sect. Pseudopilosa*, postulated below.

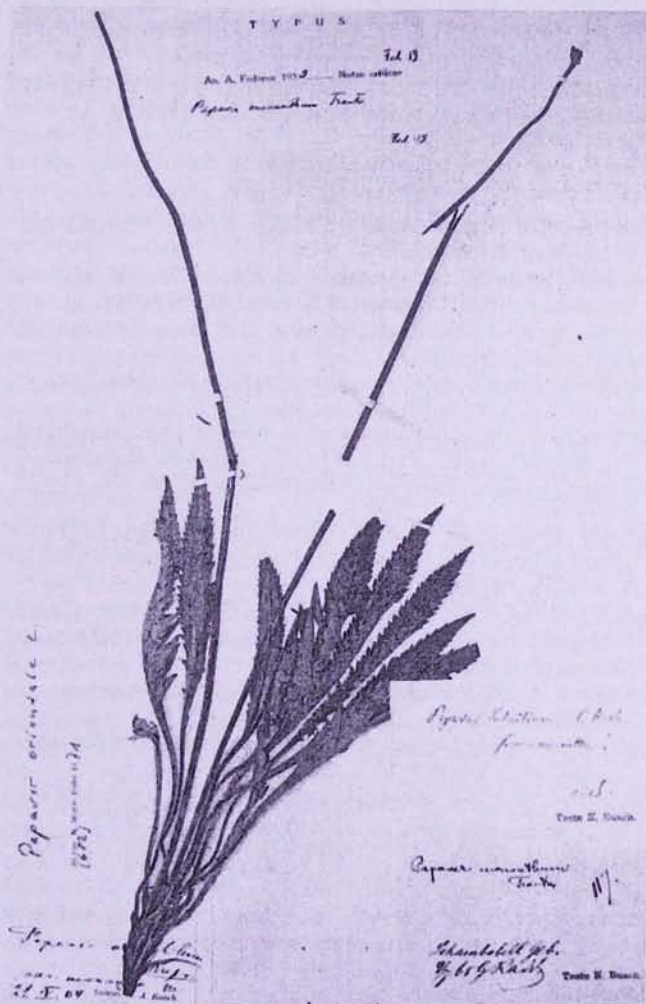


Fig. 4. Lectotype of *Papaver monanthum* (LE).

Popov's new section was segregated from Fedde's *Papaver* sect. *Pilosa*, and it is therefore but natural that it was primarily contrasted against it. Conversely, the differences between *P.* sect. *Pseudopilosa* and sect. *Macrantha* have not received sufficient attention. This is reflected by the shifting position of *P. monanthum*. Kadereit (1996), when including it in *P.* sect. *Pseudopilosa*, relied principally if not exclusively on petal and filament features: *P. monanthum* has indeed the pale orange petals and pale yellow filaments that he uses to characterise that section (*P.* sect. *Macrantha* is placed among the sections with "black" filaments, Kadereit 1988). On the other hand, when capsule shape is used as a criterion (as does Günther 1975, following Fedde 1909), *P. monanthum* fits *P.* sect. *Macrantha*.

The remarkable fact is that, in either section, *Papaver monanthum* appears to be very close to one of its component species, to the extent that it has been included in it: *P. lateritium* on the one hand and *P. orientale* on the other. How are we to explain such ambivalent phenotypical coincidence in terms of phylogenetic relationships? We cannot answer this question as yet, but suggest two possible hypotheses to solve the apparent conflict, to be tested by future research. Either *P. monanthum* is a hybridogenous taxon, arisen from the intersectional cross between two unrelated parent species close to or identical with present-day *P. orientale* and *P. lateritium*; or else, the present distinction between the two sections, whether based on capsule features or filament colour, is artificial and must better be abandoned.

Acknowledgements

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My special thanks to Prof Werner Greuter for editing my manuscript with his keen and alert critical sense.

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НОВЫЕ ДАННЫЕ К ФЛОРЕ АРМЕНИИ И КАВКАЗА (BRASSICACEAE: ALYSSUM, ERYSIMUM)

Приводятся новый для флоры Армении восстановленный вид *Alyssum schirwanicum* Rupr. и новые для флоры Армении и Кавказа виды *Erysimum gabrielianae* Polatschek, *E. froehneri* Polatschek, *E. sintenisianum* Bornm., *E. echinellum* Hand.-Mazz., *E. eginense* Hausskn. ex Bornm.

Ավերիսյան Վ. Ե. Նոր փյվյալներ Հայաստանի և Կովկասի ֆլորայի համար (Brassicaceae: Alyssum, Erysimum): Բերվում է Հայաստանի ֆլորայի համար նոր վերականգնված փեսակ՝ *Alyssum schirwanicum* Rupr. և Հայաստանի ու Կովկասի համար նոր փեսակներ՝ *Erysimum gabrielianae* Polatschek, *E. froehneri* Polatschek, *E. sintenisianum* Bornm., *E. echinellum* Hand.-Mazz., *E. eginense* Hausskn. ex Bornm.:

Avetisian V. E. New data for the flora of Armenia and Caucasus (Brassicaceae: Alyssum, Erysimum). A new for the flora of Armenia restored species *Alyssum schirwanicum* Rupr. and new for the flora of Armenia and Caucasus species *Erysimum gabrielianae* Polatschek, *E. froehneri* Polatschek, *E. sintenisianum* Bornm., *E. echinellum* Hand.-Mazz., *E. eginense* Hausskn. ex Bornm. are given.

Под Alyssum L.

В процессе обработки гербарных коллекций ERE, связанной с подготовкой к изданию «Определителя сосудистых растений Армении», вновь рассмотрены сборы А. А. Ахвердова и Н. В. Мирзоевой, обозначенные ими как «species nova». Это растения из родства *Alyssum tortuosum* Walld. et Kit. ex Willd. (три гербарных листа), собранные еще в 1951 г. в Зангезурском флористическом районе Армении [здесь и далее флористические районы соответствуют схеме А. Л. Тахтаджяна (1954)]. Действительно, они выделяются специфической формой плодов, что во «Флоре Армении» отмечено в примечании к *A. tortuosum* (Аветисян, 1966). Повторная идентификация подвела к незаслуженно развенчанному в своем ранге виду *A. schirwanicum* Rupr., описанному из юго-восточной части Большого Кавказа, примыкающей к Дагестану, известному также (Буш, 1910), как *A. tortuosum* var. *schirwanicum* Rupr., из северо-восточной Анатолии. В этом же ранге мною в 1976 г. определены растения с Малого Кавказа в Гербарии Института ботаники АН Азербайджана (ВАК, 4 гербарных листа). Подобный ареал (Дагестан, Малый Кавказ, Армянское нагорье) является еще одним (Тумаджанов, 1966; Габриэлян, 1980; Аветисян, 1981; Муртазалиев, 2008) свидетельством флористических связей данных регионов.

A. schirwanicum Rupr. 1869, Fl. Cauc. in Mem. Acad. Imp. Sci. Saint-Petersb. ser. 7, 15, 2: 100. Описан (locus classicus) из: «e montibus schirvanicis Cauc. Orient. Demissi ad Kurt Bulak, in abruptis aridis lapidosis substrato calcarea a 1796, lectum M. B.»

Тип: «Ex montibus Schirvanicis. Kurt-bulak a. 1796. Herb. M. a Biebert». LE!

Изученные образцы: [Турция] Карсская обл., Ольтинск. округ, бл. Герашкян. 16. VI. 04 [1904], fl., fr. imm. Михайловский. ТБИ; Армения, Зангезур, Баргушатский хр., к юго-востоку от с. Дастакерт, в альпийском поясе, на скалисто-каменистом склоне, 9 августа 1951 г., А. Ахвердов, Н. Мирзоева. ERE 67671, 103161, 167672; Azerbajdzan, Kurdistan, ad thermas Isti-su, inter p. Schirotan et tractum Schirotan, in lapidosis, 8. VIII. 1934, С. Гурвич. ВАК (три