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RUST MYCOBIOTA OF CENTRAL ALBORZ, NORTHERN IRAN

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Phragmidium . *Uromyces Puccinia Phragmidium*
Puccinia hieracii var. *Rosa iberica Geum kokanicum Ph. tranzschelianum asiae-mediae*
Uromyces eurotiae Geranium spp. Uromyces geranii Hieracium woronowianum piloselloidarum
Ph. asiae-mediae Krascheninnikovia ceratoides
Asperula Pu. monopora Ur. bupleuri
glomerata

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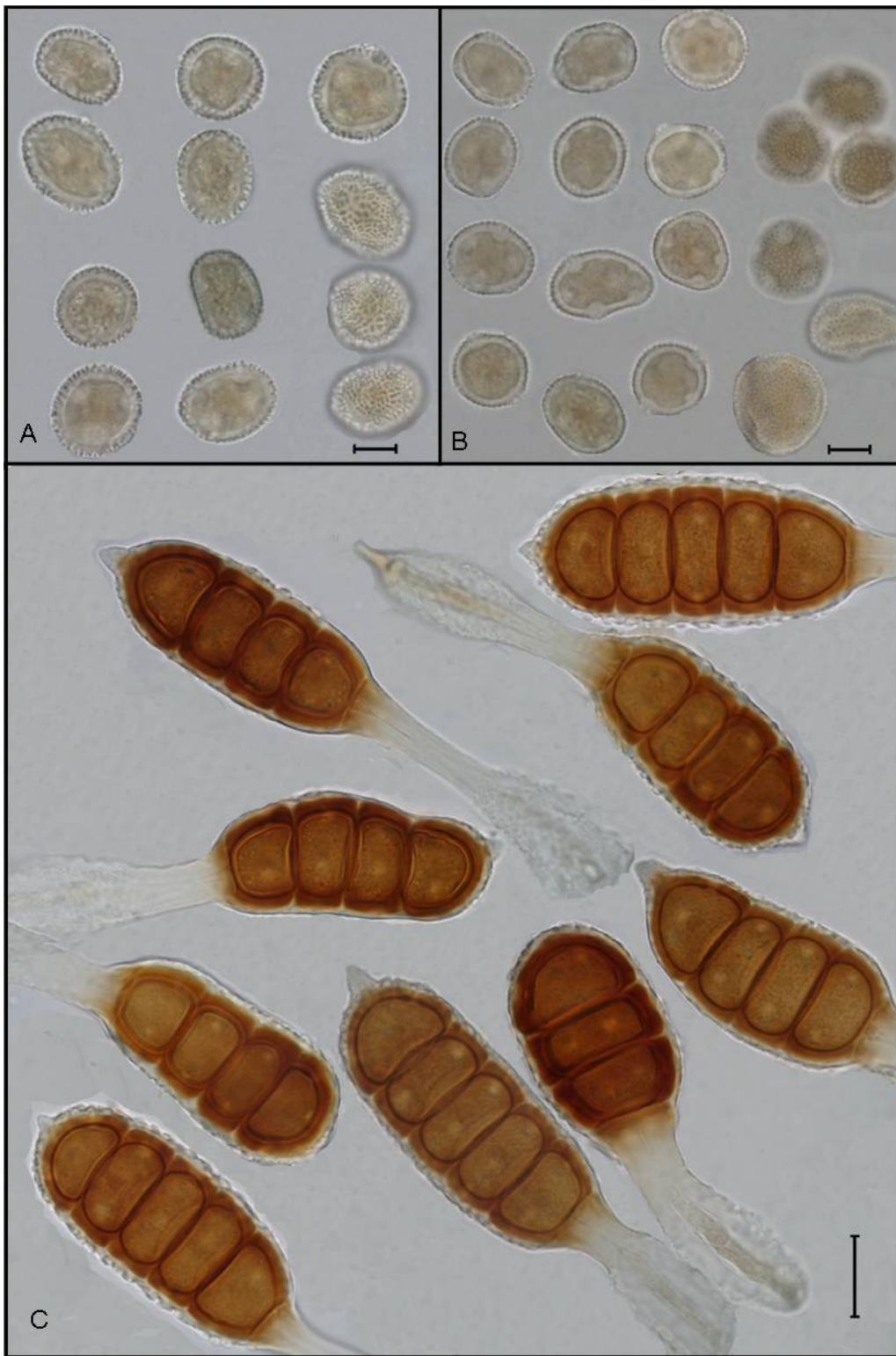
Arundineae

(a) *Eremurus* *Puccinia asparagi*
(a) (Buhse 1860)
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() a) [() (Frey & Mayer 1971)]
() () (Petrak & Esfandiari 1941)
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(Gitashenasi 2004)

Uromyces

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(Scale *Geum kokanicum* *Phragmidium asiae-mediae* (C) (B) (A) bars: A-B=10 μ m, C=20 μ m)

Fig. 1. *Phragmidium asiae-mediae* on *Geum kokanicum*, aeciospores (A), urediniospores (B) and teliospores (C), Scale bars: A-B=10 μ m, C=20 μ m.

a)
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() (Magnus1899)
(Sydow & Sydow 1908)

()
(Petrak 1939)

() (Gilli)
() ()
()
() (Jorstad 1961)

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(Cummins & Hiratsuk 2003)

(Rayner 1970)

(Savile 1971)

(Rapilly 1968)

CH2

DIC

BH2

G5

axiophot

(Hiratsuka & Sato 1982)

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(IRAN)

III II I O

() / - *Phragmidium asiae-mediae* L.I. Vassiljeva,
 Vestsi Akademii Navuk Belaruskai SSR 1: 45
 (1957)
 × *Geum kokanicum* Regel & Schmalh
)
 (Vassiljeva 1957) .((IRAN 8627 F) II+III //
 (Kuprevich & Ulyanishchev 1975) .(IRAN 14993 F) I+II+III

Ph. asiae-mediae

Geum kokanicum (= *Orthurus kokanicus*)

(Abbasi & Aliabadi 2010)

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G. kokanicum *Ph. circumvalatum* Magnus / /
 ×

Ph. asiae-mediae

-*Phragmidium tranzschelianum* L.I. Vassiljeva,
 Vestsi Akademii Navuk Belaruskai SSR 1: 45
 (1957)

Rosa iberica Steven

: / ×
 (I)+II+III //
 .(IRAN 14994 F)

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×

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- *Puccinia centaureae-virgatae* Vienn.-Bourg.
Ann. Inst. Rech. Agron. Ser. C (Ann.
Epiphyt.), 9: 128 (1958).

(Plateau shape)

Centaurea virgata Lam.

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.(IRAN 11808 F) (II)+III

P. calcitrapae

() ×

- *Puccinia chaerophylli* Purton, British Plants
3: no. 1553 (1821)

Chaerophyllum macropodum Boiss.

.(IRAN 11809 F) (II)+III

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() ×

Anthriscus nemorosa

(×)

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) *Pu. chaerophyllina* Syd.

) *Pu. distinguenda* Syd. (

Ch. Macropodum

(

Ph. tranzschelianum

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.(Viennot-Bourgin 1958)

Ph. tuberculatum

Ph. tranzschelianum

- *Puccinia gundeliae* Cooke, Grevillea, 9: 14
(1880).

Gundelia tournefortii L.



(Scale *Rosa iberica* *Phragmidium tranzschelianum* (C) (B) (A) bars: A-B=10 μ m, C=20 μ m)

Fig. 2. *Phragmidium tranzschelianum* on *Rosa iberica*, aeciospores (A), urediniospores (B) and teliospores (C), Scale bars: A-B=10 μ m, C=20 μ m.

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×

.(IRAN 11594 F) II+III //

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Pilosella

Hieracium

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P. hieracii

.(Braun 1981)

- *Puccinia liliacearum* Duby, Bot. Gall., Edn 2
(Paris) 2: 891 (1830)

Ornithogalum orthophyllum Ten.

×

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.(IRAN 10533 F) O+III

- *Puccinia monopora* Lindr., Meddn
Stockholms Högskolas Bot. Inst.: 6 (1901)

Asperula glomerata (M.Bieb.) Griseb

.(Cooke 1880)

(II)+III

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// (IRAN 10608 F)

.(IRAN 11175 F) (II)+III

- *Puccinia hieracii* var. *piloselloidarum*
(Probst) Jørst., Kgl. norske vidensk. Selsk. Skr.
38: 27 (1936) [1935]

Hieracium woronowianum Zahn

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.(IRAN 10607 F) II+III

×

×

×



Hieracium woronowianum *Puccinia hieracii* var. *piloselloidarum* (B) (A)
(scale bars=10µm)

Fig. 3. *Puccinia hieracii* var. *piloselloidarum* on *Hieracium woronowianum*, urediniospores (A) and teliospores (B), scale bars=10µm.

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Prangos

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P. ferulacea

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(Lindroth)

Crucianella glomerata

var. *lasianthae*

- *Puccinia ziziphorae* P. Syd. & Syd., Monogr. Uredin. (Lipsiae) 1(2): 304 (1902) [1904]

Ziziphora clinopodioides Lam. subsp.

) *A. glomerata*

rigida (Boiss.) Rech.f.

.(Ehrendofer *et al.* 2005

//

P. monopora

(IRAN I+II

15007 F)

II

//

.(IRAN 10604 F)

(Persia boreali)

P. spilogena Lindr.

A. molluginoides

(Saccardo 1902)

P. monopora

- *Puccinia plicata* Kom., Scripta Bot. Horti Univ. Imper. Petrop. 4: 28 (1895)

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Prangos ferulacea Lindl.

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.(IRAN 10585 F) III

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Prangos sp.

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.(IRAN 10736 F) III



(scale bars=10µm) *Asperula glomerata* *Puccinia monopora* (B) (A)

Fig. 4. *Puccinia monopora* on *Asperula glomerata*, urediniospores (A) and teliospores (B), scale bars=10µm.

(Henderson 1957)

- *Uromyces geranii* (DC.) G.H. Oth & Wartm.,
Annls Sci. Nat., Bot., sér. 3 8: 371 (1847)

// *Geranium* sp.

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Geranium (IRAN 14995 F) II+III

pyrenaicum Burm.f.

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(Gaeumann 1959)

Uromyces

II+III //

(IRAN 14996 F)

U. geranii

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U. kabatianus Bubák *U. kochianus* Gäum.

(IRAN 14997 F) II+III

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(IRAN 14998 F) II+III

Uromyces *U. geranii*

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G. pyrenaicum L. *U. kabatianus*

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U. geranii (Majewski 1977)

U. kabatianus

Kuprevich &)

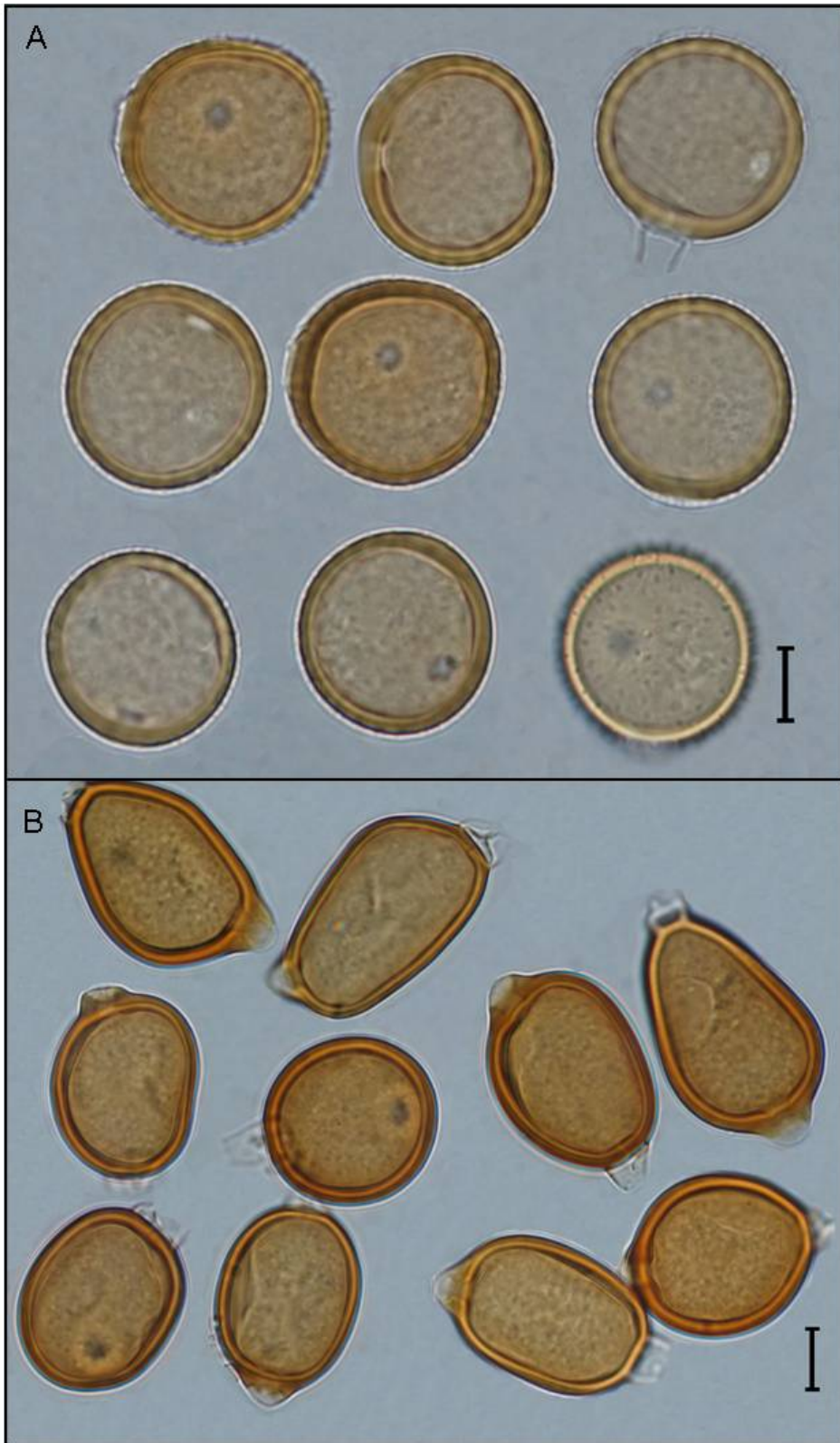
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(Ulyanishcher 1975

U. kabatianus *U. geranii*

×

×



(scale bars = 10µm) *Geranium pyrenaicum* *Uromyces geranii* (B) (A)

Fig. 5. *Uromyces geranii* on *Geranium pyrenaicum*, urediniospores (A) and teliospores (B), scale bars = 10µm.

- *Uromyces eurotiae* Tranzschel, Annls mycol. 5(6): 549 (1907)

Krascheninnikovia ceratoides (L.) Gueldenst

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.(IRAN 14999 F) II+III.

U. kabatianus

(Braun 1982)

U. geranii var. *kabatianus* (Bubák) U. Braun

- *Uromyces bupleuri* Magnus in Verh. Zool.-Bot. Ges. Wien, 49: 90 (1899)

Bupleurum exaltatum M.B.

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.(IRAN 11684 F) (II)+III

U. bupleuri

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U. bupleuri

(/) (/) × (/) /

() .(Magnus 1899)

(Pitted)

(Truncate)

/ × () / /

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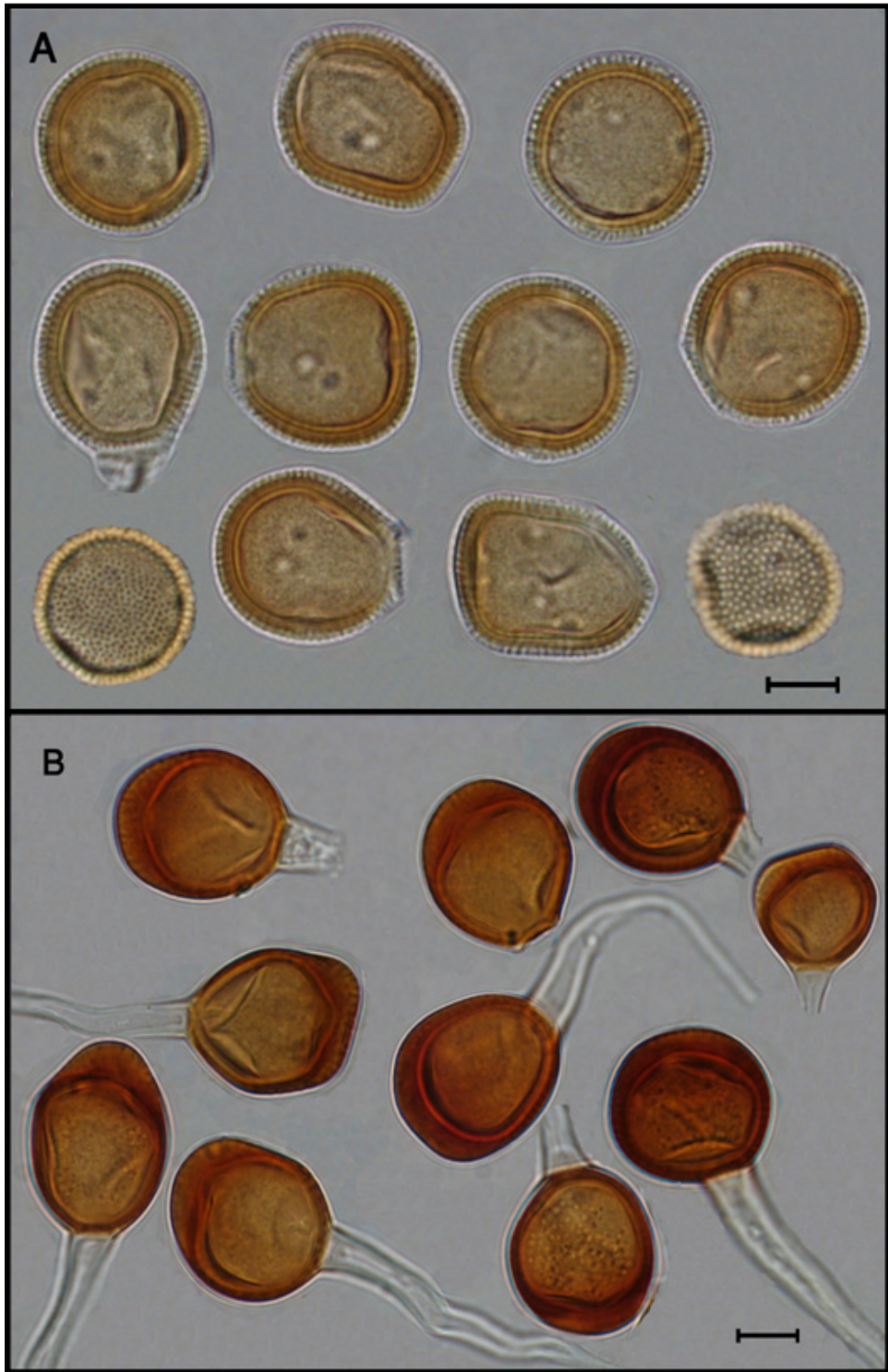
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Uromyces

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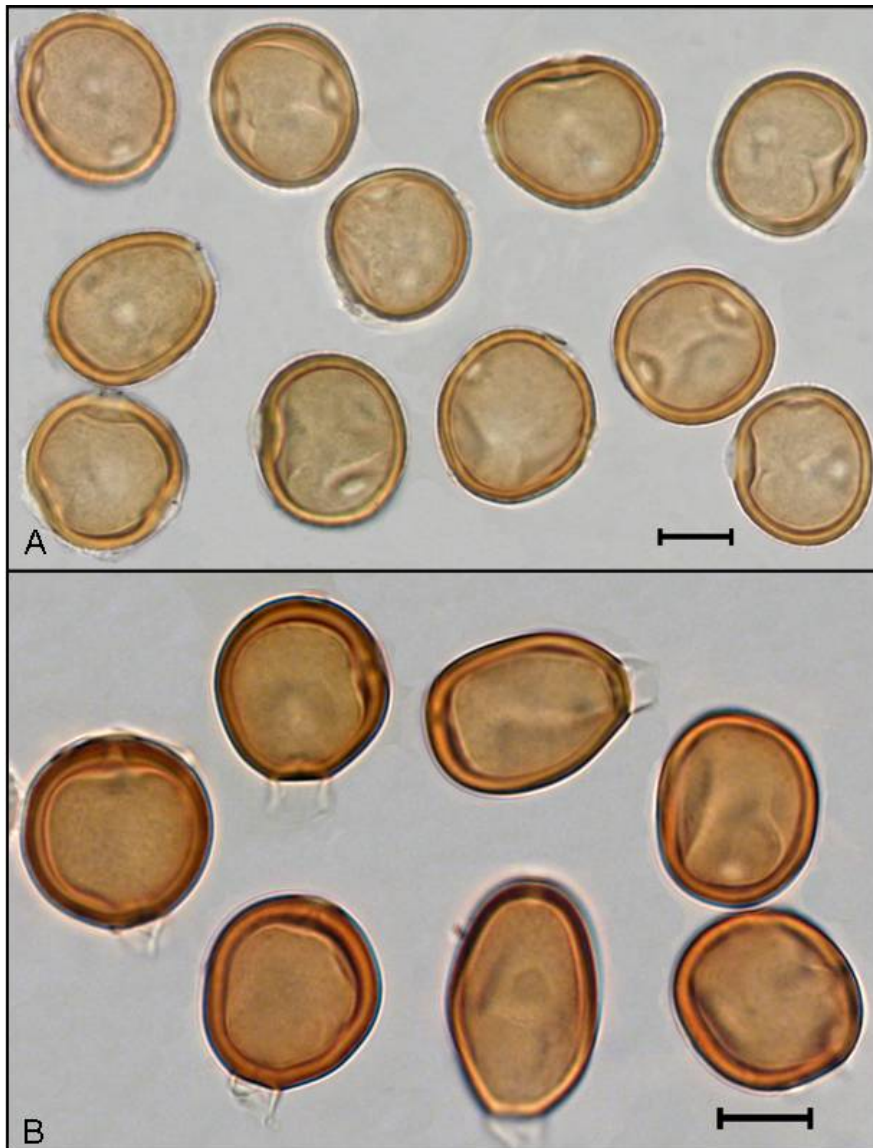
Caryophyllaceae

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(scale bars=10µm) *Bupleurum exaltatum* *Uromyces bupleuri*(B) (A)

Fig. 6. *Uromyces bupleuri* on *Bupleurum exaltatum*, urediniospores (A) and teliospores (B), scale bars=10µm.



Krascheninnikovia ceratoides *Uromyces eurotiae* (B) (A)

.(scale bars = 10µm)

Fig. 7. *Uromyces eurotiae* on *Krascheninnikovia ceratoides*, urediniospores (A) and teliospores (B), scale bars = 10µm.

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U. eurotiae