

## ASPECTS REGARDING MORPHO-ANATOMY AND CHOROLOGY OF *BLINDIA ACUTA* (HEDW.) BRUCH & SCHIMP. SPECIES IN ROMANIA

DOBRESCU Codruța-Mihaela, SOARE Liliana Cristina

**Abstract.** Mosses *Blindia acuta* (HEDW.) BRUCH & SCHIMP., 1846, is considered a sporadic species in România. It was identified in collected samples from the Protected Area of the Vâlsan Valley. This paper will provide descriptions, illustrations and the dispersing map of *Blindia acuta* species in Romania.

**Keywords:** *Blindia acuta*, România, morphology, anatomy, chorology, sporadic species.

**Rezumat.** Aspecte privind morfo-anatomia și corologia speciei *Blindia acuta* (HEDW.) BRUCH & SCHIMP. în România. *Blindia acuta* (HEDW.) BRUCH & SCHIMP., 1846, este considerată specie sporadică în România. A fost identificată de noi în eșantioane de briofite colectate din Aria Protejată Valea Vâlsanului. Lucrarea ilustrează aspecte morfoanatomice ale speciei *Blindia acuta* și harta răspândirii ei în România realizată pe baza datelor personale și a celor din literatura de specialitate.

**Cuvinte cheie:** *Blindia acuta*, România, morfologie, anatomie, corologie, specie sporadică.

### INTRODUCTION

Bryophytes are made up of a fascinated and difficult group at the same time, a group which tests the meticulous and perseverance of those who come across them.

*Blindia acuta* (HEDW.) BRUCH & SCHIMP., 1846, was less investigated in our country because their identification when sporophytes miss is quite difficult.

The species is known throughout Europe, the Azores, Asia (Caucasus, Siberia, Turkey, Japan, Central Asia, Far East), Africa (Madeira), Greenland, North America and South America also recorded in Zaire, Reunion Islands and Tasmania. Ecology: meso-hygrophytic, sciophytic, acidophytic, epilithic, grows on wet rocks along the valleys of the streams in mountain forests to alpine areas (3500 m). Dark green to yellowish-green tufts or patches, blackish below, on damp or wet rocks.

*B. acuta* is insufficiently known. Previous citations of *B. acuta* were realized by foreign bryologists.

In the Protected Area of the Vâlsan Valley, it was identified in many samples collected in the upper basin of the river, beginning with Alunu and upstream Alunu, at an altitude of 1000-1200 m.

### MATERIAL AND METHODS

Following some research of bryophytes from the Protected Area of the Vâlsan Valley, a collection and processing of a rich briological samples, we identified the *Blindia acuta* (HEDW.) BRUCH & SCHIMP., 1846 species, which is considered a sporadic species in Romania (DIHORU, 1994).

To determine these species, microscopic preparations were made to analyze the characteristics of gametophytes and sporophytes; we used a microscope Optika B-253 to which a micro-photo camera Canon A630 was attached to take photos.

On the base of my data and of the data published in specialty literature I achieved the map rendering the distribution of *B. acuta* species in Romania using the Romanian base biogeographic map with squares and notation GEOCOD. To create the distribution maps, the Corolog 2002 software was used (OLTEAN & ȘTEFĂNUȚ, 2002).

### RESULTS AND DISCUSSIONS

Due to the similarities of the habitat with other species of musci from the family Dicranaceae some bryologists include *Blindia acuta* in this family.

Morphological and anatomical analysis led us to the following characters: leaves are erecto-patent, secund when moist, hardly altered when dry (Figs. 1; 2), ovate lanceolate, the ovate base gradually narrows into long, subulate, margins denticulate at apex, entire below (Figs. 3a, d). Basal cells are oblong to oblong-linear, incrassate, yellowish brown (Fig. 3b).

Leaves with distinct and strong nerve, excurrent, in basal part somewhat narrowed and up to three times length of basal portion (Fig. 3c). The basal part of the leaf is brownish with enlarged allar cells in a well differentiated, distinct group (Figs. 4; 5).

Seta erect, capsule ovoid, smooth and erect, stomata present, peristome teeth, lanceolate erect (Figs. 6; 7).

Morpho-anatomical peculiarities of sporophyte and gametophyte were particularly important role in the taxonomy; all the described characters are features of the Selligeriaceae family.

The map rendering the distribution of *B. acuta* species in România is presented in Figure 8.

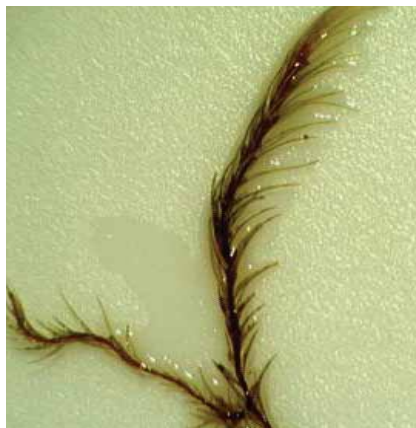


Figure 1. Aspect of moist leaves.  
Figura 1. Aspectul frunzelor umede (original).



Figure 2. Aspect of dry leaves.  
Figura 2. Aspectul frunzelor uscate (original).

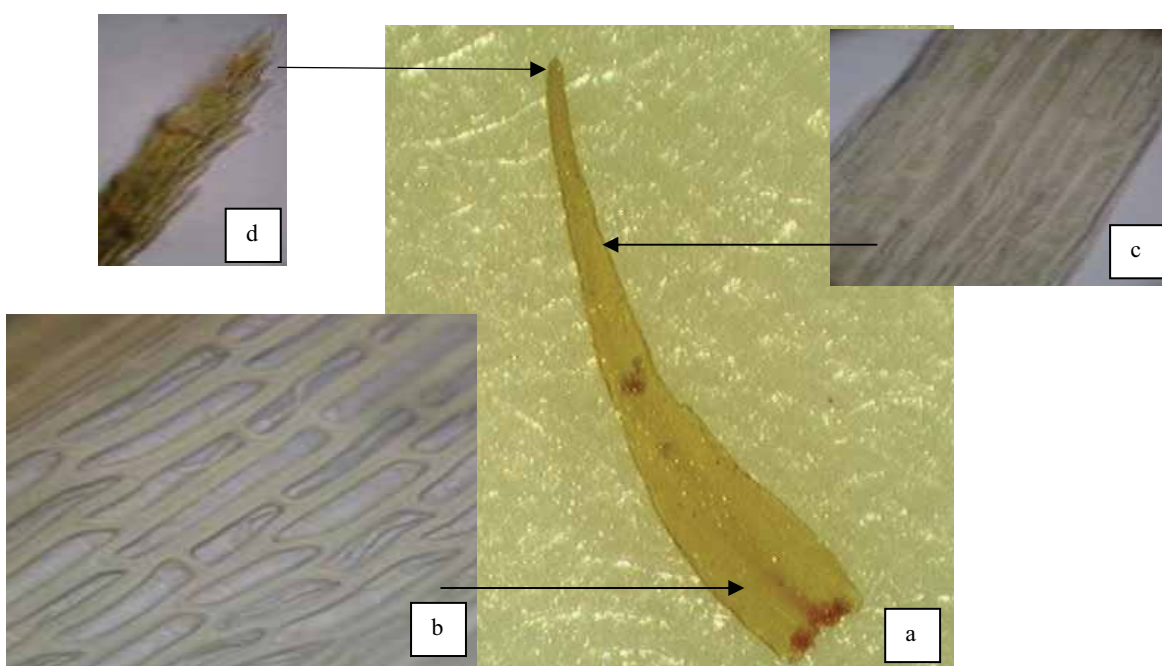


Figure 3. a. Leaf (x 10); b. Lamina cells (x 40); c. Nerve cells (x 40); d. Denticulate apex (x 40).  
Figura 3. a. Aspect general al frunzei; b. Celule ale laminei; c. Celule ale coastei în porțiunea subulată a frunzei; d. Vârful frunzei (original).

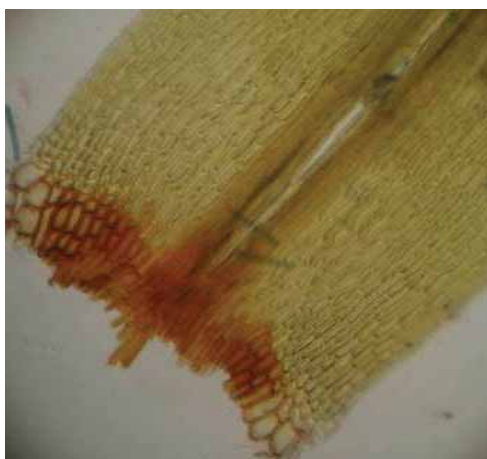


Figure 4. Basal part of the leaf.  
Figura 4. Porțiune bazală a frunzei (oc.10x, ob.10, zoom 4, original).

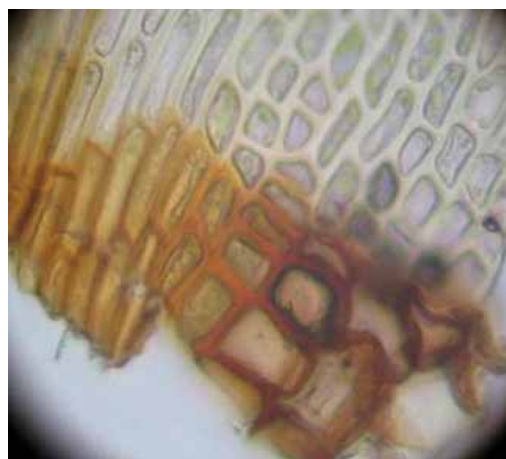


Figure 5. Angular cells.  
Figura 5. Celule angulare (oc.10x, ob.40, zoom 4, original).



Figure 6. Old capsules.

Figura 6. Sporogon matur (oc.10x, ob.10, zoom 4, original).

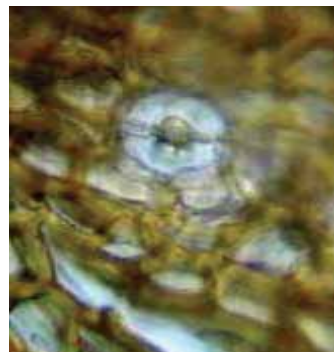


Figure 7. Stomata.

Figura 7. Stomată (oc.10x, ob.40, zoom 4, original).

The chorology in România:

**Maramureș County:** Buteasa (PLĂMADĂ, 1974); Botiza (PETERFI, 1908);

**Maramureș Mountains:** Pop Ivan (BOROȘ & VAJDA, 1969); the Vaser Valley (HAZSLINSZKY, 1885);

**Rodna Mountains:** Pietrosu Peak (HAZSLINSZKY, 1868; BOROȘ, 1951); Corongiș Peak (MATOUSCHEK, 1905);

**Bârgău Mountains:** the Ilva Valley about 650 m (GYÖRFFY & PÉTERFI, 1916);

**Deda – Toplița Passage** (Mureș County): Lunca Bradului (IGMÁNDY, 1943);

**Siriu Mountains:** the Vacii Valley – the Siriu Valley (DIHORU, 1963, 1975);

**Ciucaș Mountains:** 1600 m (BOROȘ & VAJDA, 1967); (MIHAI & PASCAL, 1982); Măneciu Ungureni, Cheița Valley (DIHORU, 1986; MOHAN, 1988);

**Bârsa Mountains:** Piatra Mare (BOROȘ & VAJDA, 1967);

**Bucegi Mountains:** the Mălăiești – Jepii Valley, Bucșoiu, Omul (DEGEN, 1914); id. 1400-1900m (BOROȘ & VAJDA, 1969);

**Leaota Mountains:** Cetățeni (DIHORU, 1980);

**Făgăraș Mountains:** the Cârțișoara Valley, upstream Bălea mountain shed 1200-1800 m, the Arpaș Valley to Podragu Lake 1800 m (BOROȘ & VAJDA, 1967); Bălea Lake (DIHORU, 1986); upper course of the Topolog River, 1680-2000 m (HERZOG, 1919); the Vâlsan Valley: Alunu and upstream Alunu, (DOBRESCU, SOARE, 2007);

**Cozia Mountains:** Păușa Valley, Bulz Mountains (DIHORU, 1980, 1990);

**Parâng Mountains:** between Stâne and Parâng Peak (BARTH, 1883);

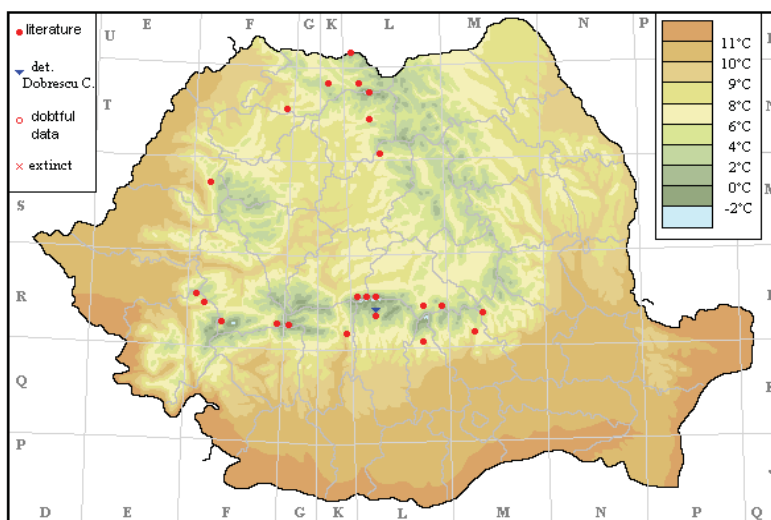
**Gilort Gorge:** (PLĂMADĂ, 1974);

**Retezat Mountains:** to Black Lake (PALL, 1964);

**Poiana Ruscă Mountains:** Rusca Montană (ORBAN, 1974);

**Banat Region – northern part:** (PANČIĆ, 1861);

**Bihar Mountains:** Buteasa Peak, Stâna de Vale 1200-1250 m (PÉTERFI, 1908).

Figure 8. Distribution of *Blindia acuta* in România. / Figura 8. Distribuția speciei *Blindia acuta* în România.

## CONCLUSIONS

The *Blindia acuta* is sporadic set off in almost all mountain areas of our country.

In some of the specialized works (PAPP, 1967), it was mentioned in a list of species of bryophytes found in Romania, however without describing or mentioning the zones where it vegetates.

It is possible, at first sight, a part of *B. acuta* samples missing the sporophyte, to be labeled as Dicranaceae.

The mentioning of the new resort from these parts of the Făgăraș Mountains brings additional information on the chorology of bryophytes from the south part of the country (Muntenia).

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Dobrescu Codruța-Mihaela, Soare Liliana Cristina  
University of Pitești, Valley Fair Street, 1, Pitești, 110040, România  
E-mail: codrutza\_dobrescu@yahoo.com, soleil\_cri@yahoo.com

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