

# ビョウタケ目ビョウタケ科の日本新産種ダイセンニカワブ ドウタケ(新称)について

|       |   |
|-------|---|
| 誌名    | 財団法人日本きのこセンター菌茸研究所研究報告 = Reports of the Tottori Mycological Institute |
| ISSN  | 03888266  |
| 著者名   | 長澤, 栄史<br>米澤, 朋子<br>中桐, 昭   |
| 発行元   | 日本きのこセンター菌茸研究所  |
| 巻/号   | 49号   |
| 掲載ページ | p. 1-4  |
| 発行年月  | 2019年9月   |

農林水産省 農林水産技術会議事務局筑波産学連携支援センター  
Tsukuba Business-Academia Cooperation Support Center, Agriculture, Forestry and Fisheries Research Council  
Secretariat



## ***Ascotremella faginea* (Helotiales, Helotiaceae) new to Japan \***

Eiji NAGASAWA, Tomoko YONEZAWA, and Akira NAKAGIRI \*\*

### **Abstract**

*Ascotremella faginea* is reported for the first time from Japan and is also the first record of the genus from Japan. The specimen was collected in October on a fallen branch of an unidentified broad-leaved deciduous tree in a beech forest of Tottori Prefecture, western Japan. A brief description of the Japanese specimen is given along with illustrations including a color photograph of the fruiting-body, a SEM photograph of ascospores, and line drawings of salient microstructures.

**Key words:** biogeography, beech forest, discomycetes, Ascomycota.

*Ascotremella faginea* (Peck) Seaver is the type and the only species of the genus which belongs to Helotiaceae of Helotiales in Leotiomyces (Kirl et al. 2008, Korf 1973). This inoperculate discomycete species is well characterized by forming purplish brown to dull reddish purple, cerebriform, gelatinous fruiting-bodies reminiscent of those of the tremelloid jelly fungi on dead branches and trunks of broad-leaved deciduous trees, particularly *Fagus*, and microscopically by possessing relatively small, elliptic, non-septate, hyaline ascospores finely and longitudinally ribbed on the wall (Beaton and Weste 1976, Bessette 1997, Breitenbach and Kränzlin 1984, Dennis 1981, Gamundí and Dennis 1969, Korf 1973, Peck 1890, Seaver 1930).

So far it has been known from North America (USA – from New York State the species was originally described, and Canada) and Europe (Nordic countries, England, Switzerland, Slovakia) in Northern

Hemisphere, and also in Southern Hemisphere, from South America (Brazil and Argentine) and Australia (Bessette 1997, Breitenbach and Kränzlin 1984, Dennis 1981, Gamundí and Dennis 1969, Dissing 2000, Ripková et al. 2007, Seaver 1951). In Asia we have two records, one from Far East Asia (Kurile Islands, on *Alnus maximowiczii* Callier; Gamundí and Dennis 1969) and the other from West Asia (Turkey, on beech branch; Akata et al., 2016)

In October of 2018 an usual fungus (Fig.1) forming a soft-gelatinous, cerebriform fruiting-body colored more or less purplish brown on a fallen branch of broad-leaved deciduous tree was collected by one of us (TY) in a beech forest (dominated by *Fagus crenata* Blume) at Mt. Daisen (1,729 m above sea level) in Tottori prefecture, western Japan. Later the specimen was identified as *A. faginea* after microscopical observation and subsequent research of the literature. *A. faginea* has been hitherto unknown

---

\* Contribution No.412 of the Tottori Mycological Institute, 211 Kokoge, Tottori 689-1125, Japan.

\*\*Fungus/Mushroom Resource and Research Center, Faculty of Agriculture, Tottori University, 4-101 Koyama, Tottori 680-8553, Japan.

from Japan (Katamoto, 2010); hence it is reported here with a description and illustrations.

In the following description, the color codes given in parentheses (ex., 8E5 to 9F4-5) are from Kornerup and Wanscher (1967). Microscopic examinations were based on both fresh and dried specimen using Melzer's reagent and KOH (2.5% aqueous solution). The examined specimen was deposited in the herbarium of the Tottori Mycological Institute (TMI), Tottori, Japan.

*Ascotremella faginea* (Peck) Seaver, *Mycologia* **22**: 53, 1930. (Figs. 1-6)

≡ *Haematomyces fagineus* Peck, *Annu. Rep. New York State Mus. Nat. Hist.* **43**: 79, 1890.

≡ *Neobulgaria faginea* (Peck) Raitv., *Izv. Akad. Nauk Estonsk. SSR*: 302, 1963.

Ascocarp (Fig. 1) soft-gelatinous, a cerebriform mass or somewhat like a bunch of grapes, up to 55 × 33 mm wide and 30 mm high, comparatively easily detached from the substrate; consisting of irregularly rounded to lobed apothecia growing crowded together; hymenial surface shiny, smooth or wrinkled, dull to dark purplish brown (8E5 to 9F4-5), paler (near 8D4) in the sterile undersurface; flesh more or less translucent, subhyaline with a slightly purplish hue.

Ascospores (Figs. 2, 3) 7.2–9.0 × 3.3–3.6 μm (in Melzer's reagent, n= 22: mean, 8.0 ± 0.7 × 3.5 ± 0.1



Fig. 1. Habit of *Ascotremella faginea*. TMI-37387. Photo by T. Yonezawa (20 Oct. 2018).

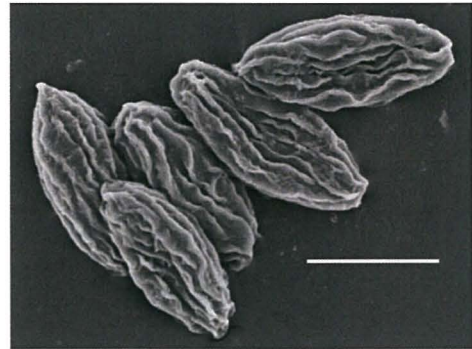
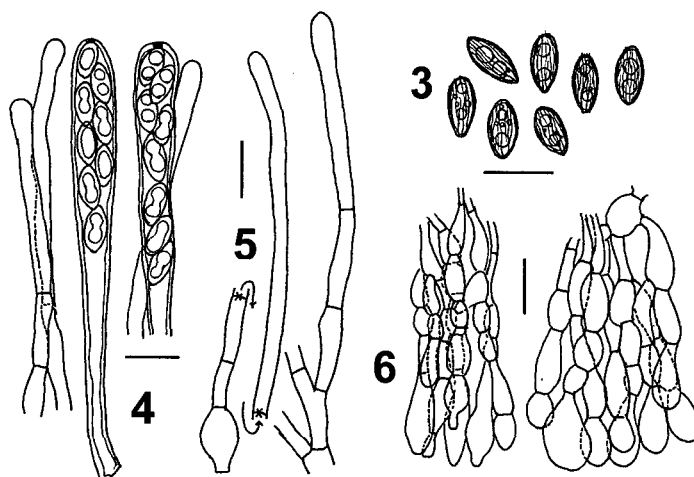


Fig. 2. SEM photograph of ascospores of *Ascotremella faginea*. TMI-37387. Note: This photograph was taken from dried spore deposits on malt agar medium and observed under a scanning electron microscope (SU1510, Hitachi High Technol., Japan) after coating with platinum. (Scale bar, 5 μm)

μm), length/width= 2.0–2.7 (in Melzer's reagent, n= 22: mean, 2.3 ± 0.2) [6.6–9.0 × 3.6–4.2 μm (in KOH, n= 14; mean, 7.8 ± 0.6 × 3.9 ± 0.3)], one-celled, elliptic to elliptic-fusoid, at times pointed or truncated at the one end, or more or less truncated at the both ends, usually 2-guttulate, hyaline, moderately thick-walled; walls longitudinally striate, with 6–8 (in side-view), thin and narrow ridges which are often forked and occasionally anastomosed. Asci (Fig. 4) 72.0–86.4 × 6.0–8.4 μm (spore bearing portion 29.4–42.0 μm long), cylindric-clavate, 8-spored, uniseriate to biseriate, inoperculate, with an amyloid apical pore. Paraphyses (Figs. 4, 5) filiform, nearly equal or somewhat shorter than asci in length, 2.4–3.0 μm wide, equal or somewhat enlarged at the apex (–3.6 μm), poorly septate (mostly in the lower portion), sometimes branched near the base. Medullary excipulum composed of loosely interwoven hyphae embedded in a gelatinous matrix; hyphae 3.2–9.6 μm wide, hyaline, filamentous to irregularly inflated, often crooked intricately, moderately branching. Ectal excipulum (Fig. 6) 88–112 μm thick, a palisade of catenulate hyphae vertically oriented to the surface, not gelatinous; element cells hyaline, thin-walled, 6.4–17.4 μm wide and usually widest at the terminal ones which are broadly clavate to obovate,



Figs. 3–6. Microstructures of *Ascotremella faginea*. TMI-37387. Fig. 3. Ascospores. (Scale bar, 10  $\mu$ m) Fig. 4. Asci containing ascospores and paraphyses. (Scale bar, 10  $\mu$ m) Fig. 5. Paraphyses. (Scale bar, 10  $\mu$ m) Fig. 6. Portions of an ectal excipulum. (Scale bar, 20  $\mu$ m)

occasionally broadly elliptic to subglobose, 12.6–31.8  $\times$  9.6–17.4  $\mu$ m, at times with a shortly prolonged apex,

**Specimen examined:** on fallen branch of broadleaved deciduous tree, in the beech forest of Mt. Daisen, above the sea level about 800–850 m, Daisencho, Saihaku-gun, Tottori Prefecture, Japan, 20 Oct. 2018, Coll. by Tomoko Yonezawa, EN 18-102 (TMI-37387)

**Remarks:** The Japanese specimen would be safely identified as this species, having characters described above, particularly the cerebriform, gelatinous ascocarp colored purplish brown, the striated ascospores measuring about 7–9  $\times$  3.5–4  $\mu$ m, and the ectal excipulum consisting of a non-gelatinous palisade layer of catenulate hyphae. The longitudinally ridged-striate ornamentation of the ascospores is so fine that it would be often easily overlooked in the observation with a light microscope. Our SEM observation of the ascospores clearly shows that the wall is ornamented by thin and narrow, more or less longitudinally oriented ridges like dorsal fins that are occasionally branching and anastomosing.

In the literature the apical pore of the asci is often described as not staining blue by iodine reagent (often as “J-” or inamyloid) (Breitenbach and Kränzlin 1984,

Bessette et al. 1997, Dennis 1978, Dissing 2000). In the Japanese specimen the amyloid reaction was very weak or little observed when Melzer’s reagent was directly applied to the asci, but a blue-staining reaction to the reagent was clearly observed with pretreatment with an aqueous 2.5 % KOH solution.

Due to its habit and habitat *A. faginea* may be easily mistaken in the field for *Neobulgaria pura* (Fr.: Fr.) Petrak (= *Ascotremella turbinate* Seaver) (Dennis 1978, Gamundí and Dennis 1969, Korf 1973) or a member of the jelly fungi, such as *Tremella* and *Exidia*. However, *N. pura* is distinctive in having smooth ascospores and a two-layered, differently organized ectal excipulum, and the jelly fungi are also distinctive in having basidia.

#### References

- Akata, I., Uzun, Y. and Kaya, A. 2016. Macrofungal diversity of Zigana Mountain (Gümüşhane/Turkey). *Biol. Diversity and Cons.* **9**: 57-69.
- Beaton, G. 1976. Australian Discomycetes: *Ascotremella*. *Trans. Br. Mycol. Soc.* **67**: 146–148.
- Bessette, A.E., Bessette, A.R. and Fischer, D.W. 1997. *Mushrooms of northeastern North America.*

- Syracuse University Press, Syracuse. 582 p.
- Breitenbach, J. and Kränzlin, F. 1984. Fungi of Switzerland. Vol. 1. Ascomycetes. Verlag Mykologia, Luzern. 310 p.
- Dissing, H. 2000. *Ascotremella* Seaver. In: Hansen, L and Knudsen, H. (eds.) Pp. 136–137. Nordic macromycetes. Vol. 1. Ascomycetes. Nordsvamp, Copenhagen.
- Dennis, R.W.G. 1978. British Ascomycetes. Revised and enlarged edition. J. Cramer, Vaduz. 585 p.
- Gamundí, I.J. and Dennis, R.W.G. 1969. The status of *Ascotremella* Seaver (Fungi – Helotiales). *Darwiniana* 15: 14–21.
- Katumoto, K. 2010. List of fungi recorded in Japan. The Kanto Branch of the Mycological Society of Japan, Chiba. 1,177 p.
- Korf, R.F. 1973. Discomycetes and Tuberales. In: Ainsworth, G.C., Sparrow, F.K., and Sussman, A.S. (eds.) Pp. 249–319. The Fungi: an advanced treatise. Vol. IVA. A taxonomic review with keys: Ascomycetes and Fungi Imperfecti. Academic Press, New York.
- Kornerup, A. and Wanscher, J. H. 1967. Methuen handbook of colour, 2nd ed. Methuen & Co. Ltd., London. 243 p.
- Kirk, P.M., Cannon, P.F., Minter, D.W., and Stalpers, J.A. 2008. Dictionary of the fungi, 10th ed. CABI, Wallingford, UK. 784 p.
- Peck, C.H. 1890. Report of the Botanist. Annu. Rep. New York State Mus. Nat. Hist. 43: 51–97.
- Ripková, S., Adamčík, S. and Kučera, V. 2007. New, rare and less known macromycetes in Slovakia II. *Czech Mycol.* 59: 185–199.
- Seaver, F.J. 1930. Photographs and descriptions of cup-fungi. X. *Ascotremella*. *Mycologia* 22: 51–54.
- Seaver, F.J. 1951. The North American cup-fungi (Inoperculates). Published by the author, New York. 428 p.

## 摘 要

ビョウタケ目ビョウタケ科の日本新産種ダイセンニカワブドウタケ (新称) について

長澤栄史・米澤朋子・中桐昭

鳥取県大山のブナ林内において採集された標本 (落葉広葉樹の落枝上に発生) に基づき, *Ascotremella faginea* (Peck) Seaver の日本における発生を初めて報告した. 本種は, ビョウタケ目ビョウタケ科に所属する *Ascotremella* 属の基準種であり, かつ唯一の種類である. 外観的には落葉広葉樹の落枝や倒木上に, ゼラチン質な紫褐色~鈍赤紫色の, 複雑に入り組んだ脳みそ様塊状の子実体 (子嚢果) を形成すること, また, 顕微鏡的には比較的小形な (大山産標本ではほぼ  $7-9 \times 3.5-4 \mu\text{m}$ ), 楕円形, 単細胞, 無色の子嚢胞子を持つが, その表面に縦に走る繊細な筋状の模様 (光学顕微鏡下では見逃され易いが, 走査電子顕微鏡下では低い背びれ状~筋状の隆起として観察される) が有ることを著しい特徴とする. 文献によれば主たる分布地は北アメリカ東部 (原記載地はアメリカ合衆国ニューヨーク州) のおよび北西ヨーロッパのようであるが, 南アメリカ (ブラジルおよびアルゼンチン) のおよびオーストラリアからも報告が有る. また, アジアからはトルコおよび千島列島での発生が知られている. 本種は, 外観の特徴においてブナ倒木上に一般的なニカワチャワンタケ (*Neobulgaria pura* = *Ascotremella turbinata*) に類似するが, 同種は子嚢胞子が平滑で, また, 托外層の構造において異なる. 新和名として, 産地および外観の特徴に因み, ダイセンニカワブドウタケ (大山膠葡萄茸) を提案する.