

日本産ツツジ属植物雑報(十六): 冬芽鱗片の内部組織の観察

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Masahide KURITA* : Some Notes on the *Rhododendron* Plants from Japan XVI. Internal Aspect of Winter Bud Scale

栗田正秀* : 日本産ツツジ属植物雑報 (十六) 冬芽鱗片の内部組織の観察

There were published many papers on a development of a foliage leaf of different species. Some notes (FITTING 1921, FOSTER 1937, HAMA 1958, ESAU 1965) were made on a winter bud scale which is closely related to the foliage leaf. These notes also are mainly concerned in the development of the scale. It seems that few studies are carried out on an other field than the development.

In the present paper, there is observed a variation which arose within a parenchyma of fully developed bud scale of the genus *Rhododendron* through a winter.

Materials and Method

The species used are *Rh. reticulatum* D. DON, *Rh. dilatatum* MIQ. var. *decandrum* MAKINO, *Rh. indicum* (L.) SWEET and *Rh. obtusum* (LIND.) PLAN. var. *kaempferi* (PLAN.) WILSON. The first species grew wild at Akatsukidai, Yokkaichi-shi, the third was cultivated at the same section, and the others grew wild at Eno, Komono-cho, Mie-gun. The winter bud scales of all the species were collected and studied from the early part of January to the middle of February in 1982 year.

For making a description simple and plain, an ordinary scale developed mainly from a leaf base is called P-scale in this paper, and an unordinary scale with a small lamina-like piece besides a main part similar to the P-scale is called PL-scale. In this scale, the piece is abbreviated to L and the main part to P.

Observation

1. *Rh. reticulatum* and *Rh. dilatatum* var. *decandrum*

A palisade and a spongy parenchyma are fairly differentiated in an L of PL-scale. Two large spaces are found in a transverse section of the L (Fig. 1). Each space is usually enclosed by a single layer of spongy parenchyma cell on the abaxial side (Fig. 2) and by 3 or 4 layers of the parenchyma cell on the adaxial side. The 2 spaces are rarely found to be joined together under the main vascular bundle. The cells of spongy parenchyma

in the L of PL-scale are closely attached to one another, and therefore the parenchyma shows merely a minute intercellular space, except for the large spaces mentioned above. The abaxial epidermis joins compactly to the outermost cell layer of spongy parenchyma just inside the epidermis along the whole length (Fig. 2).

In a P-scale and a P of PL-scale, there is not differentiated a palisade parenchyma in contrast with the L of PL-scale. A transverse section of the P-scale and of the P of PL-scale shows such a large space as found in the L of PL-scale, with the exception of a section of an upper part of the P-scale. There are, however, found some sections which show 2 to several medium-sized spaces. In this case, the largest of these spaces is often situated near the main vascular bundle. An appearance of these spaces is not concerned with whether a part of a single scale is overlapped by that of the other scale or not. As found in the L of PL-scale, all the spaces are usually enclosed by a single layer of parenchyma cell on the abaxial side and by 3 or 4 layers of parenchyma cell on the adaxial side. There is, here and there, found a remnant of cell which is attached to the parenchyma cells around the space.

On the adaxial side, a cell in the 2nd layer of parenchyma from the outside becomes a sclerenchyma cell here and there (Fig. 3). There is also found a large group of sclerenchyma cells (Fig. 4), all of which were transformed from the cells in all the layer of parenchyma between the adaxial epidermis and the large space. However, a parenchyma cell (in the 1st parenchyma cell layer from the outside) just inside the adaxial epidermis has little tendency to become a sclerenchyma cell.

2. *Rh. indicum* and *Rh. obtusum* var. *kaempferi*

These 2 species are not different from *Rh. reticulatum* and *Rh. dilatatum* var. *decandrum* in the aspect of the large space and of the parenchyma around the space. However, the former 2 species far differ from the later 2 in an appearance pattern of sclerenchyma cell in the P-scale and in the P of PL-scale. The sclerenchyma

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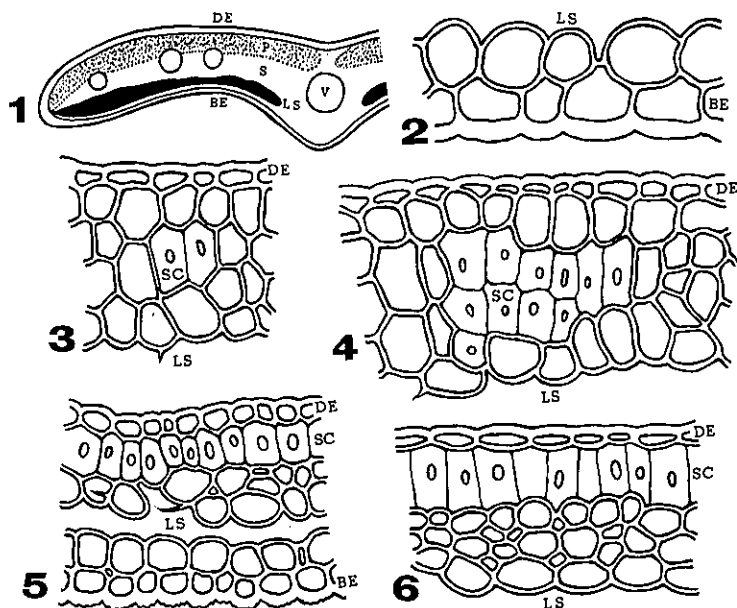


Fig. 1—6. Transverse section of bud scale. 1 and 2, an L of PL-scale of *Rh. dilatatum* var. *decandrum*, half of the L (1); abaxial epidermis and its adjoining parenchyma cells (2). 3 and 4, adaxial epidermis and sclerenchyma cells within parenchyma in a P of PL-scale of *Rh. reticulatum* (3) and *Rh. dilatatum* var. *decandrum* (4). 5 and 6, a P-scale of *Rh. indicum* (5) and *Rh. obtusum* var. *kaempferi* (6), sclerenchyma cells just inside adaxial epidermis. DE, adaxial epidermis. BE, abaxial epidermis. P, palisade parenchyma. S, spongy parenchyma. V, vascular bundle. LS, large space (solid only in Fig. 1). Fig. 1, $\times 35$. The others, $\times 330$.

cell is transformed from a parenchyma cell (in the 1st layer of parenchyma cell from the outside) just inside the adaxial epidermis (Fig. 5, 6) of *Rh. indicum* and *Rh. obtusum* var. *kaempferi*. The cells in the other layers of parenchyma are not observed to have become the sclerenchyma cells.

Discussion

A remnant of cell was, here and there, found to be attached to the parenchyma cells around the large space. The appearance of the space is, therefore, considered to be lysigenous at some parts of the single large space and to be schizogenous at the other parts. The abaxial side of the large space is usually demarcated by a single layer of parenchyma cell (the 1st parenchyma cell layer from the outside) which joins closely to the abaxial epidermis. The formation of the large space is thought to be caused, in a lysigenous case, by a separation between the 1st and the 2nd parenchyma cell layer (from the outside), and in a schizogenous case, by a dissolution of cells in the 2nd layer. A middle

lamella between the 1st and the 2nd parenchyma cell layer, together with a cell in the 2nd layer, seems to be susceptible to a low temperature.

In *Rh. indicum* and *Rh. obtusum* var. *kaempferi*, a sclerenchyma cell was transformed from a parenchyma cell (in the 1st parenchyma cell layer from the outside) just inside the adaxial epidermis. A cell in the other layers of parenchyma is not observed to have become a sclerenchyma cell. In the 2 remaining species, the sclerenchyma cell was first transformed from some cells in the 2nd

layer of parenchyma from the outside. A cell in the other layers of parenchyma between the adaxial epidermis and the large space also became a sclerenchyma cell, while the cells in the 1st layer have little tendency to become sclerenchyma cells. As mentioned above, *Rh. indicum* and *Rh. obtusum* var. *kaempferi* are different from *Rh. reticulatum* and *Rh. dilatatum* var. *decandrum* in the type of a sclerenchyma cell formation.

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摘 要

ツツジ属4種(コバノミツバツツジ, トサノミツバツツジ, サツキ, ヤマツツジ)の冬芽鱗片の内部組織が観察された。材料鱗片は1月初旬から2月中旬までに採集されたものである。

いずれの種の鱗片にも大きい空隙がある。いま背軸面から内部への順に、柔組織細胞の層に番号をつけて述べると、この大空隙は1)ある所では第2層細胞に破壊がおり、2)ほかの所では第1層細胞と第2層細胞との間で隔離がおこって生じたものと考えられる。

向軸側表皮と大空隙間にある柔組織で厚膜細胞化がみら

れた。向軸面から内部への順に柔組織細胞層に番号をつけて述べると、サツキ, ヤマツツジの2種では、厚膜化は第1細胞層だけにみられた。しかるにコバノミツバツツジ, トサノミツバツツジの2種では、厚膜化は第2層細胞で始まり、ついで第1層から大空隙までの他細胞層にひろがってゆく。しかし第1層細胞では厚膜化はあまりおこらないようである。このように、厚膜化の様子でサツキ, ヤマツツジの2種はコバノミツバツツジ, トサノミツバツツジの2種とは明らかにちがっている。

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○ 三好功一他編：秋田県雄勝地方植物誌，雄勝野草の会（〒012 湯沢市清水町1-4-21，土田方），1982.1.1発行。B5版，88頁。非売品。

秋田県雄勝地方は、秋田県の南部に位置し、東は岩手県、南は宮城県及び山形県と隣接し、栗駒山・神室山・虎毛山・高松岳・姥井戸山などの山々に囲まれ、豊かな緑に恵まれている。本書はシダ植物と種子植物の目録で、139科、1223種(帰化・植栽・逸出などの87種を含む)が記載されている。この同定には、佐竹義輔博士・望月陸夫氏のご指導ならびにご助言を受けた由である。

○ 佐島英雄・須藤志成幸・津久井芳雄共著：桐生市植物誌，桐生市教育委員会（〒376 桐生市織姫町1番1号），1981,11,3発行。B5版，258頁+カラー図版12頁。2,900円。

共著者等の11年に及ぶ御協力が本書を産み出した。桐生市域に自生する高等植物の数は153科1308種(帰化・逸出植物6科34種を含む)で、これらの目録は第VIII章(167~216頁)に集録されているが、それに先立ち、第I章 自然環境、第II章 植生の概要と各説を説明したあとで、第III章 植物相、第IV章 主要植物(群落)概説、第V章 各地の植物、第VI章 植物と四季、第VII章 新発見植物と「群馬県植物誌」未記載種と続いている。また、巻末には保護の問題とか方言名、参考文献などが記されていて、次に紹介する書とともに関東北部の植物を知る良い参考書であり、御購読をおすすめしたい。

○ 長谷川順一著：栃木県の植生と花，月刊さつき研究社（鹿沢市見望台12），1982.4.20発行。B5版，248頁。3,800円
本書を手にして、先ず美しいという感が印象深い。それもそのはずで、カラー写真頁が72頁も入っている。本年栃木県で開催された全国植樹祭の記念出版ということであるが、御臨席あそばされた天皇陛下には、「那須の植物(1962)」と「那須の植物誌(1972)」の御著書があるだけに、大変御よろこびになられたことと推察する。

著者は序文に「栃木県の植生を詳細に記述すること、それが私が本書を執筆する最大の動機である」と記されている。したがって、第II部栃木県の植生に90頁から246頁までの大半を使用し、1. 照葉樹林帯(スダジイ林・カシ林・モミ林・ツガ林の位置づけ)、2. 落葉広葉樹林帯(ブナ林・ミズナラ林・ハルニレ林・ウラジロモミ林・ツガ林・ヒノキ林)、3. 針葉樹林帯(コメツガ林・シラビソ-オオシラビソ林・ヒメコマツ-クロベ林・アスナロ林、針葉樹林の構造と天然更新)、4. 森林限界付近(ダケカンバ林、ミヤマハンノキ林、ミヤマナラ低木林、亜高山帯高落草原)、5. 高山帯(ハイマツ低木林、矮生低木群落、高山草原・荒原)、6. 火山の植生(茶臼岳の火山植生、チシマザサ群落の枯死と回復、ミヤコザサ群落の枯死と実生苗の生長)、7. 溪畔林と湿地林(トチノキ林、シオジ林、オオバヤナギ林、ヤマハンノキ-サワグルミ林、その他の河川林、ヤチダモ林、ハンノキ林)、8. 池沼と湿原の植生(流水の植物群落、池沼の植物群落、低層湿原、高層湿原)、9. 戦場ヶ原・沼沼・枯木沼の植生、10. 岩場・崩壊地・河原の植生、11. コナラ林・アカマツ林(コナラ林・アカマツ林・アカマツ・コナラ林の原植生、アカマツ林の故里)、12. 農耕地の雑草(越年生植物の生活史、田畑の冬の雑草、畑の夏の雑草、水田雑草、芝生の雑草、路上とグラウンドの雑草)の12章で栃木県の植生を詳述し、その内容を示す群落組成表が末尾に添えられている。

○ 鈴木兵二監修，矢野悟道編集：霧ヶ峰の植物 諏訪市教育委員会，1982.3発行。B5版。非売品

1971年に発行された同書の再版であるが、内容は全面的に改訂された。第1部「霧ヶ峰の植生」は巻頭にカラー写真16頁を配し、本文は246頁。第2部「霧ヶ峰の植物目録」は多数のカラー写真を含めて118頁、学術的に高く評価される著書である。非売品であるが、7,000円(送料1,000円)で御傾けられる由で、入手希望者は諏訪市高島1丁目2番30号、諏訪市教育委員会、社会教育課に申込みるとよい。(里見信生)