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ON THE NEW GENUS KINUGASA

BY

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(With 3 text-figures)

Kinugasa TATEWAKI ET SUTÔ, gen. nov.

Perigonum (7)–8–12-phyllum persistens; segmenta distincta. Sepala petaloidea, niveo-lactea, lanceolata, reticulata. Petala linearia, apice paulo dilatata, totidem quot sepala, calicis dimidio breviora. Stamina an constanter 2-seriatem sepalis petalisque opposita, erecta, petalis breviora vel subaequilonga, ima basi segmentiorum inserta. Antherae biloculares, lineares, basi leviter bifidae, apice abrupte et abbreviate obtuso-mucronatae. Ovarium basi sessile, liberum, globosum, truncato-depressum, apice crenulato-marginatum; stigmata 6–8-, subulata, crassiuscula, apice recurvato-hamata; stili in columna brevissima connati. Bacca indehiscens. Semina subglobosa. Rhizoma annotinum tuberoso-incrassatum, carnosum, cylindricum, leviter annulatum, fuscum, fibras ramulosas emittens.

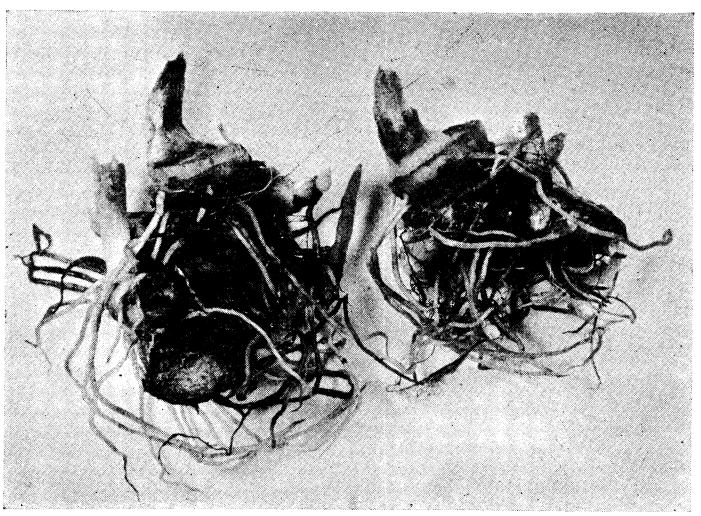

Fig. 1. Rhizome, (cult. in Sapporo, originally obtained at Mt. Gassan), taken on April 24, 1935.

[Trans. Sapporo Nat. Hist. Soc., Vol. XIV, Pt. 1, 1935]

Caulis simplex, erectus, basi vaginis paucis brevibus scariosis stipatus. Folia 7–12, ad apicem caulis vertcillata, spathulato-lanceolata vel obovata, apice abrupte et breviter acuminata, in petiolum brevem attenuata, trinervia, nervulis ramoso-anastomosantibus. Flos unicus, interfolia pedicellatus, erectus.

NOM. JAP. *Kinugasasô-zoku.*

Remerks. The present genus is allied to *Paris* and *Trillium*, but it is distinguished from the former by the character of the rhizome, the petaloid sepals, the abruptly short-acuminate leaves, and also by the caespitose habits; and from the latter by the shape and number of the leaves, the shape of the stigma and also by the number of the floral parts. It is also closely related to *Trillidium* KUNTH [Enum. Pl. V. (1850), 121], from which it differs by the characters of the rhizome, the shape of the pistil and leaves, and also by the number of the floral parts.

Fig. 2. *Kinugasa japonica* TATEW. ET SUTÔ in the boggy place; about 1500 m. alt., Mt. Gassan, Prov. Uzen, taken on July 24, 1934.

In many species of both *Trillium* and *Paris* spontaneously growing in Japan, Mr. T. HAGA [in Journ. Fac. Sc. Hokk. Imp. Univ. V.-3. no. 1. (1934)] has made a comparison of the chro-

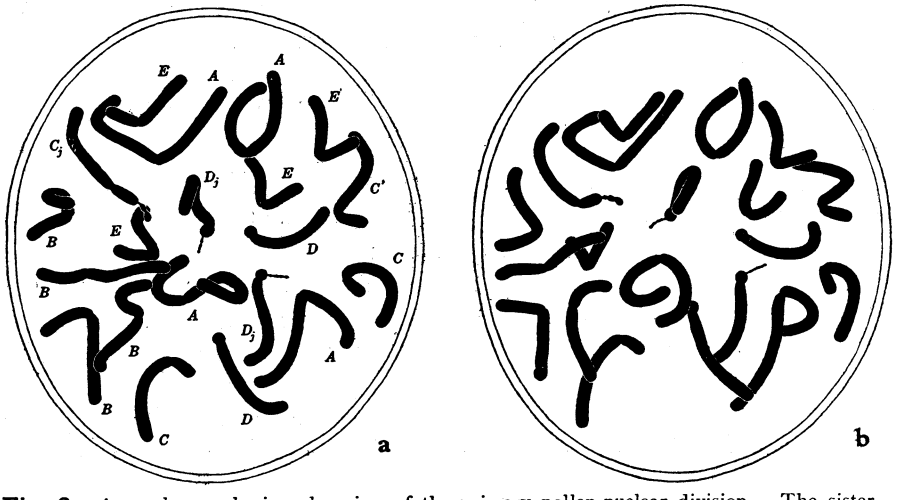

Fig. 3. An early anaphasic polar view of the primary pollen-nuclear division. The sister groups are shown separately in two optical sections a and b. (870 ×). (reproduced by kind permisson of Mr. T. HAGA).

mosome complement. In these groups, he has called attention to the presence of the somatic complement of the di-, the tri- and the tetra-ploids which have 5-chromosomes as a basic number divididg into the five different types, namely A, B, C, D and E, and also to the fact that the D-chromosomes of *Trillium* are the d-type bearing no trabants, while those of *Paris* are furnished with the characteristic trabants, although each of A-, B-, C- and E-chromosomes in both genera is quite similar respectively.

The present genus represented by *Kinugasa japonica* is a octoploid type having 40-chromosomes [8 (A+B+C+D+E)] in the somatic complement. According to many data acquired by Mr. T. HAGA (unpublished), it is a very interesting fact that each of two chromosomes in the pollen grain (*fig. 3, Dj*) belonging to the D-type bears a trabant while other two to the D-type (*fig. 3, D*) have none, representing the character of *Paris* in the former, while that of *Trillium* in the latter, and A-, B- and E-chromosomes are of the same types as those of both genera, but one of the C-chromosomes has a special trabant belonging neither to *Paris* nor to *Trillium*. (*fig. 3, Cj*).

Kinugasa japonica TATEWAKI ET SUTÔ, com. nov.

Trillidium japonicum FR. ET SAV. Enum. Pl. Jap. II. (1879), 56, 525.

Paris japonica FRANCH. in Mém. Soc. Phil. Paris, (1888), 290, *pl. XXIV. A*; MATSUM. Ind. Pl. Jap. II.-1. (1905), 209; MAKINO, Zôtei Sômoku-zusetsu, II. (1910), 594, *pl. 463*; KRAUSE, in ENGL. u. PR. Nat. Pfl.-fam. 2-Auf. Bd. 15a. (1930), 374; HONDA, List Pl. Shirouma Alp. Range, (1930), 15; MAKINO & NEMOTO, Fl. Jap. ed. 2, (1931), 1560; TAKEDA, Atl. Alp. Pl. Jap. (1933), 69, *pl. 302*.

Trillium japonicum MATSUM. Shokubutsu Mei-i, (1885), 298.

NOM. JAP. *Kinugasa-sô.*

HAB. *Honshû*: Mt. Gassan, Prov. Uzen (T. SUTÔ, VII. 1929); Mt. Hiuchi, Prov. Iwashiro (H. TAKEDA & M. TATEWAKI, VII. 19, 1924); Mt. Myôkô, Prov. Echigo (K. WATANABE, VII. 19, 1897); Mt. Shirouma, Prov. Shinano (M. MIURA, VIII. 11, 1906); Mt. Shôzu, Prov. Etchû (H. TAKEDA, VIII. 14, 1905); Mt. Hakusan, Prov. Kaga (R. YATABE & J. MATSUMURA, VIII. 8, 1881).

The writers desire to acknowledge their indebtedness to Profs. K. MIYABE and H. MATSUURA for their valuable advices. Particular mention should be made of the courtesy of Mr. T. HAGA who most kindly placed in the hand of the writers many unpublished cytological data to be used in the present study.

摘　　要

従來キヌガササウ屬は *Paris* ツクバネサウ屬、*Trillium* エンレイサウ屬、若しくは *Trillidium* 屬に入れられ、特に本邦ではツクバネサウ屬の植物として今日迄取扱はれてゐた。しかし百合科の分類に際して重要なる地下部の性質から觀察してゆくと、キヌガササウの當年の地下部の性質は全くツクバネサウ屬のものと異り、寧ろエンレイサウ屬に近い性質を有してゐる (Fig. 1 參照)。一方花辨様をなす萼片の性質や葉の形狀などを比較し、雄蘂、雌蘂の形狀を考慮に入れると何れの屬とも合致しない。又胞細學上から觀察しても兩屬と異つてゐる。即ち *Trillium* も *Paris* も共に單數で5本の染色体を有し、デプロイド、トリプロイド、テトラプロイド種が見出され、この5本の基本染色体は形態上から夫々 A, B, C, D, E 型に區別される。從つてこの兩屬に於ては複染色体數を 2 (A+B+C+D+E)、3 (A+B+C+D+E) 及び 4 (A+B+C+D+E) の式で表すことが出來る。而して *Paris* の D-染色体はトラバントを有し、*Trillium* ではこれを缺いてゐる事に依り、兩屬を區別することが出來る。然るにキヌガササウは 40 本の複染色体を有し、8 (A+B+C+D+E) に依つて表し得るオクタプロイド種である。而して8本の D-染色体を見るに4本は *Paris* 型でトラバントを有し、他の4本は *Trillium* 型でトラバントを缺いてゐる。又 C-染色体の一對にトラバントを有するものがあつて、それは *Paris* にも *Trillium* にも存しない新型の染色体である。

玆に是等の事實に基いてキヌガササウを基準種とし、キヌガササウ屬を設立した次第である。尙 ENGLER-PRANTL, Natürliche Pflanzenfamilien Bd. 15a (1930) の 374 を見るとヒマラヤ、西藏、支那に分布する、*Paris polyphylla* SMITH は葉形、花の部分の指數を除いては本屬に近い性質を有してゐる。又雲南に分布する *Paris yunnanensis* FRANCH. 西部支那に分布する *Paris Fargesii* FRANCH. 及び *Paris chinensis* FRANCH., ダフリアに分布する *Paris verticillata* M. BIEB 等は地下部は不明であるが、雄蘂、雌蘂の特徴は本種に近い性質を有してゐるものの様である。