

CORDYCEPS SPECIES

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During a study of North American species of *Cordyceps* (Mains 1957, 1958a), considerable information was obtained concerning species elsewhere, especially from South America and China. These included types of species in the Farlow Herbarium described by Patouillard, P. Hennings, Berkeley and Curtis and Petch (FH) and those of Teng in the National Fungus Collections, United States Bureau of Plant Industry (BPI). Also a number of collections from Argentina and Bolivia have been received from Rolf Singer (MICH). The results of a study of species in the Lloyd Herbarium (BPI) has been presented elsewhere (Mains 1958b).

Cordyceps parvula sp. nov. figs. 1-3. Stromatibus parvis, cylindricis, 1-1.5 mm longis, 100-200 μ latis, cinereis, pruinosis; peritheciis ovoideis, 500-650 \times 250-300 μ , brunneis, superficialibus, caespitosis in apicibus stromatum; ascis cylindricis, 400-500 \times 5-6 μ ; ascosporis filiformibus, cellis 8-10 \times 1 μ ; synnematibus cylindricis, capitatis; phialidibus cylindricis, 8-10 \times 2 μ ; conidiis ellipsoideis, 3-4 \times 1.5 μ .

On a species of Orthoptera, near Zaraza, Guarico, Venezuela, Dec. 8, 1939, C. E. Chardon, 3727, type (MICH).

The stromata are scattered, very small with the perithecia in small clusters at the apices (figs. 1 & 2). They consist of parallel or slight interwoven longitudinal hyphae with an outer covering of short, loose, flexuous hairs. The perithecia are ovoid, with acute apices (fig. 3), and are crowded but not embedded. The cylindric asci have 4 μ thick caps. The ascospores are filiform and part spores were not seen. The stromata are accompanied by synnemata which are similar to the stromata except they are slightly capitate with obovoid or globoid heads, 175 \times 100-175 μ . The heads are covered by a layer of cylindric phialides. The conidia are hyaline and ellipsoid, 3-4 \times 1.5 μ . The apically clustered superficial perithecia separate this species from others on Orthoptera.

Cordyceps trinidadensis sp. nov. fig. 4. Stromatibus parvis, 2 mm longis, capitatis; capitulis turbinatis, 0.8 mm latis, pallide brunneis; stipitibus 0.2 mm latis, fulvidis; peritheciis anguste ellipsoideis vel oblongis, 250-300 \times 100-125 μ , apicibus rotundatis, immersis ad perpendiculum; ascis cylindricis, 125-175 \times 2.5-3 μ ; synnematibus albis, 1-1.5 mm longis, ramosis; phialidibus oblongis, 8-10 \times 3 μ ; conidiis oblongis, 6-10 \times 1.5-2 μ .

On a cricket (Orthoptera) Concord Estate, Saugre Grande, Trinidad, Jan. 4, 1917, F. W. Urich, FH6162, type.

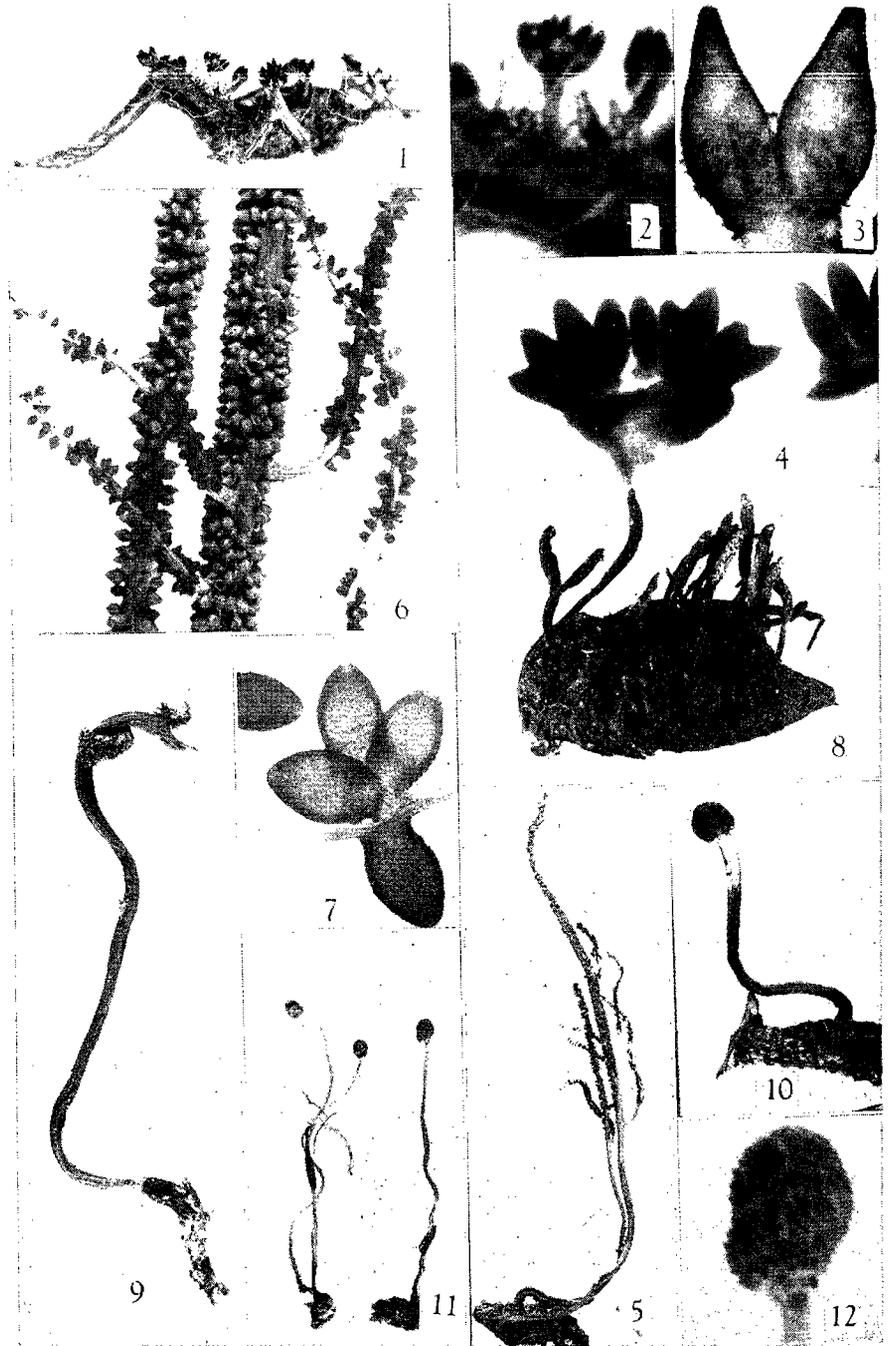
The stromata are very small only 2 mm long with flattened turbinate light brown heads less than 1 mm wide and slender, 0.2 mm thick, yellowish stipes. The stipes consist of longitudinal hyphae which spread out above and become interwoven in the base of the head. The perithecia are crowded

and are narrowly ellipsoid or oblong, rounded at the apices (fig. 4), and vertically embedded in soft tissue of closely interwoven hyphae without a differentiated cortex. The ostioles of the perithecia open on the upper surface of the head. The asci are cylindric and immature. The stromata are accompanied by white slender synnemata. The conidiophores which arise from their apices are repeated dichotomously branched and the branches terminate in oblong phialides with asperulate apices.

This specimen was found in the Farlow Herbarium determined as *C. uleana* P. Henn. by Petch. As described by Hennings (1904), Petch (1934) and Moureau (1949), *C. uleana* has much larger stromata with spherical heads. The perithecial are embedded at right angles to the surface of the head and are larger and have acute apices. *C. trinidadensis* is close to *C. langlosii* which was described from larvae of a mason wasp from Louisiana (see Mains 1958a). The latter, however, has embedded ovoid perithecia with acute apices.

***Cordyceps subflavida* nom. nov.** (*C. albida* Pat. & Gaillard Bul. Soc. Myc. Fr. 4: 116. 1888, non *C. albida* Berk. & Curt. ex Cooke, Grevillea 12: 78. 1884). Under the name *C. albida* Patouillard and Gaillard described a species on the larva of an unidentified insect from Atures, Venezuela. *C. albida* Berk. & Curt. had previously been published by Cooke for a fungus on crickets from Cuba. The latter appears to be the same as *C. albella* Massee which Petch (1931) has concluded is a *Penicillium*. The type of *C. albida* Pat. & Gaillard, No. 108, is in the Patouillard Collection of the Farlow Herbarium. The stromata which were described as white slightly yellowish are gray in the dried specimens. They are broken but apparently were clavate up to 20 mm long, with the upper perithecial portions 2-4 mm thick and the stipes 0.6-1 mm thick. The perithecia are narrowly ovoid attenuated above into narrow necks, 500-600 × 150-200 μ, with well differentiated brownish walls 15-20 μ thick. They are completely and somewhat obliquely embedded in a tissue consisting of closely interwoven hyphae without a differentiated cortex. The asci are cylindric 225-300 × 3-4 μ with a 2 μ thick cap. The ascospores are filiform and immature.

***Cordyceps petchii* nom. nov.** (*Cordyceps ramosa* Petch British Myc. Soc. Trans. 21: 42. 1937, non *C. ramosa* Teng, Sinensia 7: 810. 1936). Petch described this species as on coleopterous larvae from collections in the Farlow Herbarium (FH6133 type and FH2626) collected by J. B. Rorer in Trinidad. Since Teng had previously used *C. ramosa* for a different species (see later discussion) it is necessary to rename the Trinidad species. The specimens cited by Petch have been studied. T. H. Hubbell of the Museum of Zoology has examined the specimens and has concluded that they are definitely on Lepidoptera larvae. The stromata are brownish gray, slender, 1 mm thick, up to 7 cm long and with up to 6 lateral branches which are up to 2 cm long (fig. 5). They consist of compact longitudinal parallel hyphae. The perithecia



are ovoid to ellipsoid (fig. 7), $300-420 \times 156-280 \mu$, light brown to chestnut-brown with walls $30-40 \mu$ thick. They appear to originate within the outer hyphae of the stromata but very early break through and become superficial and free (fig. 6). The asci are somewhat fusoid, $150-180 \times 5-8 \mu$, with a $2.5-3 \mu$ cap. The ascospores are filiform, up to $100 \times 2 \mu$, multiseptate not breaking into fragments. This species is near to *C. acicularis* but is separated by its branched stromata.

Cordyceps erotyli Petch, British Myc. Soc. Trans. 21: 40. 1937. This species was described by Petch from collections on *Erotylus* sp. (Coleoptera) from Trinidad. Collections 2622, 2625 type and 6120 made by Thaxter in Trinidad and 489 by Linder in British Guiana from the Farlow Herbarium have been seen. The stromata arise from adult beetles and are yellowish or whitish, clavate to subcapitate, slender, 4-15 mm long, 0.5-1 mm thick above with stipe 0.2-0.3 mm thick. The stipe and core of the upper perithecial portion consist of compact, longitudinal light brown hyphae. The perithecia are ovoid, $360-500 \times 150-200 \mu$, light brown, with a $15-20 \mu$ thick wall. They are embedded at right angles to the surface in a soft tissue consisting of interwoven hyphae without a differentiated cortex and the apices project due to the shrinkage of the tissue. The asci are cylindric, $150-300 \times 3-4 \mu$ with a slightly thickened cap, 1.5μ . The ascospores are filiform, 1.5μ thick. Part spores were not seen. Conidiophores occur on the mycelia up to 200μ long. The phialides are narrowly ovoid, acuminate, $10-18 \times 1.5-2 \mu$ in terminal and intercalary groups of 2 or 3. The conidia are oblong $3-4.5 \times 1.5 \mu$, hyaline. This species is very similar to *C. polyarthra* Möller which occurs on larvae of Lepidoptera (see Mains 1958a).

Cordyceps juruensis P. Henn. Hedwigia 43: 248. 1904. There is a collection of this species in the Farlow Herbarium which appears to be part of the type. It is labeled "E. Ule. Herbarium Brasiliense No. 2817. *Cordyceps juruensis* P. Henn. n. sp. Auf Erdboden, Juruá, Marary. Amazonas. September 1900." The stromata are light grayish brown, clavate 4-8 cm long, with the upper perithecial portions $6-12 \times 3-4$ mm and the stipes 1.5-2 mm thick. The inner hyphae of the stipes and central cores of the perithecial portion are compact, longitudinal, somewhat interwoven, hyaline with the outer hyphae of the stipes dark brown. The perithecia are narrowly ovoid, $450-550 \times 150-200 \mu$, with well differentiated brown walls, $20-25 \mu$ thick. They are crowded and entirely embedded at right angles to the surface in a tissue

FIGS. 1-3, *Cordyceps parvula* sp. nov. FIG. 1, insect with stromata $\times 5$. FIG. 2, stroma $\times 12$. FIG. 3, perithecia $\times 50$. FIG. 4, *Cordyceps trinidadensis* sp. nov. apex of stroma with perithecia $\times 40$. FIGS. 5-7, *Cordyceps petchii*. FIG. 5, branched stroma $\times 1$. FIG. 6, Portion of stroma showing superficial perithecia approx. $\times 8$. FIG. 7, perithecia $\times 50$. FIG. 8, *Cordyceps cicadicola* type, insect with stromata. FIG. 9, *Cordyceps nipponica*, Singer B2071, stroma with perithecial cushions, slightly enlarged. FIG. 10, *Cordyceps amazonica*, Singer B1408, stroma $\times 2$. FIGS. 11 and 12, *Cordyceps flavella* (= *Claviceps flavella*) Singer B1160. FIG. 11, stromata $\times 2$. FIG. 12, Head $\times 20$.

consisting of loosely interwoven hyphae below and having a poorly defined cortex of brown pseudoparenchyma. The asci are cylindric, $250-350 \times 6 \mu$ with a $3-4 \mu$ cap. The ascospores are filiform $1.5-2 \mu$ thick; multiseptate with cells $2-5 \mu$ long. The stromata bear conidiophores having heads of branches bearing spherical catenulate conidia, $2-2.5 \mu$ in diameter as illustrated by Hennings. It is doubtful that this is the conidial stage. The host is unknown. Hennings noted similarities to *C. parasitica* (= *C. ophioglossoides*) which occurs on *Elaphomyces* sp. and to *C. olivaceo-virescens* on an unknown host. Petch (1933a) has concluded that the latter is *C. brasiliensis* which he states has oblique perithecia.

Cordyceps typhulaciformis Berk. & Curt. ex Cooke, *Grevillea* 12: 78. 1884. *C. typhulaciformis* was described from a specimen in the Berkeley Herbarium (No. 8255) from Java. Masee (1895) has given a description and illustration of the type and Petch (1933a, 1942) has discussed the species and has concluded that *C. mitrata* Pat. *C. flavobrunnescens* P. Henn. and *C. coccinea* var. *subochracea* Penz. & Sacc. are the same. Among the specimens which he cites is a collection by Linder No. 2526 from Uganda in the Farlow Herbarium and one by Clemens No. 7793 F, from New Guinea formerly in the Missouri Botanic Garden now in the National Fungus Collections Washington, D. C. Both have been studied.

The Linder collection from Uganda consists of two clavate, brownish yellow to dark brown stromata, $15-20$ mm long, 1 mm thick. The perithecia are ovoid, $300-400 \times 200-220 \mu$, very closely crowded. The asci are cylindric $200-235 \times 4 \mu$ with a 2μ cap. They are immature and mature ascospores were not seen.

The Clemens collection from New Guinea has a number of important differences. It is stated that the color was orange red when fresh. The stromata of the dried specimen have dark red stipes and ellipsoid heads with dark red perithecia in a soft light yellow tissue. The perithecia are ovoid $600-750 \times 400-500 \mu$ and the cylindric asci are $400-500 \times 4 \mu$ with $2-2.5 \mu$ caps. The ascospores break into 1-celled segments, $2-4 \times 1 \mu$.

There has been some question concerning the color of *C. typhulaciformis*. Cooke described it as carneo-rubra. Masee gives the type as flesh-color and Petch as brownish yellow or dark amber. Neither give measurements for the perithecia and asci. Masee gives the ascospores as $65-70 \times 0.8 \mu$. The Linder specimen appears to agree with such information as is available concerning the species. In all except the shape of the stromata the Clemens collection appears to be *Cordyceps militaris*. Although that species usually has clavate stromata capitate variants have been noted.

Cordyceps ramosa Teng *Sinensia* 7: 810. 1936. This species was described by Teng from Anhwei, China on a hypogeous fungus, *Elaphomyces* sp. The type, S. Q. Deng 701, is in National Fungus Collections, Washington, D. C. The stromata are broken but Teng describes and illustrates them as repeated

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branched 3.5–4.5 cm long and 1.5–3 mm thick. They are cinnamon-brown and consist of compact longitudinal parallel or somewhat interwoven hyphae. The perithecia are ovoid, $350\text{--}420 \times 250\text{--}300 \mu$, with a well differentiated wall $25\text{--}45 \mu$ thick. There is a thin layer (50μ) of interwoven hyphae between the bases of the perithecia but they are otherwise superficial and free. The asci are cylindric, $250\text{--}300 \times 4\text{--}6 \mu$ with a $1.5\text{--}2 \mu$ cap. The filiform multiseptate ascospores are $1\text{--}1.5 \mu$ thick with cells $1.5\text{--}3 \mu$ long.

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This is a very unusual species for the host. All the other species of *Cordyceps* parasitic on *Elaphomyces* have simple clavate or capitate stromata with the perithecia completely embedded and form a very closely related group (see Mains 1957) from which this species is markedly different.

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Cordyceps grylli Teng Sinensia 7: 811. 1936. This species was described by Teng from Hainan, China on adults of Gryllidae (Orthoptera). The type specimen (Deng 3243) is in the National Fungus Collections, Washington, D. C. The stromata are broken. They are described as clavate with obtuse apices, yellow when fresh becoming grayish, with the upper perithecial portion 2–3 mm thick and the stipe 1–2 mm thick. The stromata consist of compact longitudinal parallel or somewhat interwoven brown hyphae. The perithecia are ovoid $400\text{--}700 \times 300\text{--}350 \mu$, light brown or chestnut-brown, with walls $25\text{--}30 \mu$ thick. They are partly embedded (up to one-half) in a layer consisting of loosely interwoven hyaline hyphae or are superficial and free. The asci are cylindric, $300\text{--}400 \times 4 \mu$. The filiform spores break into 1-celled fragments $4\text{--}5 \times 1 \mu$. It appears to be distinct from other species which have been described on Orthoptera.

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Cordyceps cicadicola Teng, Sinensia 6: 191. 1935. This species was described by Teng from Hainan, China on adult Cicadidae. The type specimen (Deng 6179) is in the National Fungus Collections, Washington, D. C. The stromata are caespitose (fig. 8), very dark olivaceous brown, narrowly clavate with acute apices, $10\text{--}25$ mm long, 1–2 mm thick above with stipes 0.5–1 mm thick. Teng gives the color as isabella when fresh. The stipe and central core of the upper perithecial portion consists of compact longitudinal somewhat interwoven brownish hyphae. The perithecia are ovoid to flaskshaped, $500\text{--}550 \times 250\text{--}300 \mu$ with thin 15μ dark brown walls. They are obliquely embedded except for the slightly projecting apices in a tissue consisting of loosely, interwoven brownish hyphae below and very densely interwoven dark brown hyphae above. The asci are cylindric $350\text{--}400 \times 4 \mu$ with $1.5\text{--}2 \mu$ caps. The ascospores are filiform, 1μ thick, with cells $5\text{--}6.5 \mu$ long according to Teng. From the description given by Kobayasi (1941) this appears to be *Cordyceps owariensis* Y. Kob.

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Cordyceps arbuscula Teng, Sinensia 7: 812. 1936. This species was described by Teng from Hainan, China on larvae of beetles (Scarabacidae). The type (Deng 3480) is in the National Fungus Collections, Washington, D. C. Although the stromata are broken they evidently were long (5–10 cm

according to Teng), slender, 1 mm thick, cylindric, much branched once or twice dichotomously as illustrated by Teng. The perithecia are ovoid, $425-500 \times 225-300 \mu$, crowded, obliquely embedded with only the apices projecting in a tissue having closely interwoven hyphae below and a cortex of compact, parallel, longitudinal, brown hyphae. The asci are cylindric $200-300 \times 4 \mu$ with the walls only slightly thickened at the apices. The ascospores are filiform and immature.

Teng states that *C. arbuscula* appears to be close to *C. polyarthra* Möller. However, the latter has short, clavate stromata with the perithecia embedded at right angles to the surface in a soft stroma of interwoven hyphae without a cortex. The cortex of *C. arbuscula* is very usual. It is similar to that of *C. stylophora* (see Mains 1958a).

Cordyceps barnesii Thwaites ex Berk. & Br. Jour. Linn. Soc. 14: 110. 1875. Teng (1935) reported this species from Hainan, China on larvae of beetles, Lamellicornia (Coleoptera). The specimen cited, Deng 3372, is in the National Fungus Collections, Washington, D. C. The stromata are 6-7 cm long. The upper perithecial portions are cylindric 10-15 mm long, 1-3 mm thick, dark brown, pale orange yellow when fresh according to Teng. The stipes are 1-2 mm thick, dark brown and tomentose at the base. The stipes and central cylinder of the perithecial portion consist of longitudinal compact parallel or somewhat interwoven brownish hyphae. The perithecia are narrowly ovoid, $350-400 \times 130-200 \mu$, with brown walls, $25-30 \mu$ thick. They are entirely embedded and very closely crowded in a layer continuous over the apices consisting of loosely interwoven hyphae below and with a cortex of brown pseudoparenchyma between the necks of the perithecia. Asci were not seen apparently having disintegrated. The 1-celled part-spores are unusually long, $30-50 \times 2 \mu$.

Massee (1895) and Petch (1924) have described and illustrated *C. barnesii* from the type and other collections from Ceylon. Both state that the stromata "usually" have acute sterile apices. Petch (1934) has concluded that *C. obtusa* Penz. & Sacc. differs from *C. barnesii* in having the "head continuous over the apex." The Deng specimens agree very well with the description and illustration of *C. obtusa* as given by Penzig and Saccardo (1904) except that they illustrate ascospores with short cells. However, Petch (1924) has stated that the part-spores of *C. barnesii* are variable being $30-40 \times 2 \mu$ in some asci and $9-12 \times 2 \mu$ in others in the Thwaites' specimens and others. It seems probable that *C. barnesii* and *C. obtusa* are conspecific. Petch (1934) has also concluded that *C. atrobrunnea* Penz. & Sacc. and *C. fleischeri* Penz. & Sacc. are the same.

Cordyceps orycephala Penz. & Sacc. Icones Fung. Javan. p. 55. 1904. Teng (1935) has reported *C. orycephala* on wasps (Vespidae, Hymenoptera) from Hainan, China, citing three collections, Deng. 3694, 3845 and 4386, which are in National Fungus Collections, Washington, D. C. The ochraceous

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stromata are up to 6 cm long, capitata with cylindric heads 7-5 mm long and 0.5-1 mm thick, having short acute sterile apices and with stipes 0.2-0.3 mm thick. The stipe and central core of the head consist of compact, longitudinal, parallel or somewhat interwoven hyphae. The perithecia are conoid, 800-900 x 170-210 μ , with brown walls 15-20 μ thick. They are obliquely embedded in a tissue consisting of loosely interwoven hyaline hyphae below with a cortex of compact parallel brown hyphae. The asci are uncertain. The part-spores are somewhat fusoid, 8-10 x 1.5 μ .

It is very doubtful whether this species is distinct from *C. sphecocephala*, also on wasps. Deng distinguishes it from the latter by subcylindric head, acute apex and oblique perithecia. However, *C. sphecocephala* has oblique perithecia and the shape of the head is not significantly different. Although *C. sphecocephala* has rounded or obtuse apices it seems questionable whether this is sufficient to justify a specific separation. Petch (1933a) has concluded that *C. oxycephala*, *C. gentilis* (Ces.) Sacc., *C. lachnopoda* Penz. & Sacc., and *C. thrysoides* Möller are all *C. sphecocephala*.

Cordyceps nutans Pat. Bul. Soc. Myc. France 3: 127. 1887. This species was described by Patouillard from a specimen on a Hemiptera received from Japan. The type is in the Patouillard Collection of the Farlow Herbarium. The stromata are bicolored with the head and upper part of the stipe yellowish and the lower part of the stipe black. The heads are narrowly fusoid. The perithecia are conoid, 800-950 x 200-300 μ , with a brownish wall 15-20 μ thick, entirely obliquely embedded in a tissue consisting of hyaline interwoven hyphae with a cortex of brownish pseudoparenchyma having an ectal palisade-like layer of hyaline cells. The asci are 4-6 μ thick up to 400 μ long and the part spores hyaline, cylindric, 8-10 x 1.5 μ . This appears to be a common species in Japan (see Kobayasi 1941).

Two specimens from China, on Hemiptera in National Fungus Collections, Teng 1206 from Chekiang and S. Q. Deng 363 from Anhwei (see Teng 1934) are similar except that the perithecia are somewhat smaller, 650-700 x 150-200 μ . A specimen (M1109) collected by Rolf Singer on *Edessa* sp. (Pentatomidae) Frontera, Misiones, Argentina (MICH) has a stroma 7.5 cm long with an oblong head, 8 x 2 mm with an acute apex and with two short black sterile branches from the upper part. The head and upper part of the stipe is yellowish (red when fresh) and the lower part of stipe black. The perithecia are up to 1100 x 300 μ , the asci 500-650 x 6-7 μ with a 6 μ thick cap and part spores 8-10 x 1.5-2 μ .

Petch (1939) has reported the species from New Guinea and Moureau (1949) from Belgian Congo. Except for the bicolored stromata it is very similar to *C. tricentrus* also described on Hemiptera from Japan. Similar species having bicolored stromata have been described on ants (*C. australis*, *C. bicephala*) and beetles (*C. curculionum*) and Moureau has concluded that they are varieties of *C. bicephala*.

Cordyceps submilitaris P. Henn. Hedwigia 36: 222. 1897. Teng (1934) reported this from Kaingsu, China on larvae of Lepidoptera and the specimen cited (Teng 1201) is in the National Fungus Collections, Washington, D. C. The stromata are clavate, simple or furcate, 3–9 cm long, the upper perithecial portions 2–6 mm thick, the stipes 1–4 mm thick, yellowish brown, reddish orange when fresh according to Teng. They are attached directly to the host as illustrated by Teng. The stipes and central core of the upper perithecial portion consist of longitudinal, compact somewhat interwoven brown hyphae. The perithecia are ovoid or flask-shaped, $500\text{--}700 \times 300\text{--}400$, obliquely embedded except for the projecting apices in a tissue consisting of compactly interwoven hyphae without a differentiated cortex. The asci are cylindric, $350\text{--}450 \times 4 \mu$ with a 2μ cap. The ascospores are immature.

C. submilitaris was described by Hennings as on sphinx caterpillars (Lepidoptera). The collector, A. Möller (1901), has stated that the species occurred on beetle larvae (Coleoptera). *C. submilitaris* is a synonym of *C. martialis* Speg. which is fairly common in the American Tropics on large coleopterous larvae. It has orange to cinnabar stromata usually attached by orange or red rhizomorphs to larvae covered by a red mycelium. The color is retained in dried specimens. The Teng specimens differs principally in being directly attached to lepidopterous larvae without a mycelial covering and drying to a yellowish brown color. It may be *C. cinnabarina* Petch from Madagascar which Petch (1933b) has stated is very similar to *C. submilitaris*.

Cordyceps nipponica Y. Kobayasi Bul. Biogeog. Soc. Jap. 9: 151. 1939. *C. nipponica* as described by Kobayasi (1941) is on *Graptopsaltria nigrofuscata* (Cicadidae, Hemiptera) from Japan. It has been reported (Mains 1958b) from Brazil for a specimen in the Lloyd Herbarium (BPI). It is therefore very interesting to have a second specimen from South America. This (B2071) was received from R. Singer on *Edessa* sp. (Pentatomidae, Hemiptera) from Guayaramerin, Vaca Diez, Beni, Bolivia (MICH). The single stroma is 5.5 cm long, furfuraceous, terete, 1–1.5 mm thick, deep yellow when fresh, light yellowish brown dried (fig. 9). The perithecia are vertically embedded in two cushions, one laterally partly surrounding the stroma and the other terminating a short branch. There are also terminal and subterminal immature cushions. The perithecia are ovoid, $750\text{--}850 \times 300\text{--}350 \mu$ with brown walls $25\text{--}30 \mu$ thick and entirely embedded in a tissue consisting of loosely interwoven hyaline hyphae with a differentiated cortex of brownish pseudoparenchyma 55μ thick. The asci are cylindric, $500\text{--}600 \times 4 \mu$ with a 2μ cap and the part spores are cylindric, $2\text{--}3 \times 1 \mu$. The host of this specimen is not only in a different family from those previously reported but also in a different suborder.

Cordyceps amazonica P. Henn. Hedwigia 43: 246. 1904. Hennings described *C. amazonica* from a specimen on *Locusta* sp. (Orthoptera), from

