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Ellurema gen. nov., with notes on Lepteutypa cisticola and Seiridium canariense.

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Summary. – Lepteutypa indica (PUNITH.) von ARX is redisposed in Ellurema gen. nov. Lepteutypa cisticola ADE and its presumptive anamorph: Seiridium canariense (PETRAK) comb. nov. (\equiv Adea canariensis PETRAK), are redescribed and illustrated.

1. Ellurema gen. nov., Amphisphaeriaceae, Sphaeriales pertinens. (Etym.: anagram of MUELLER).

Corticola ad foliicola. Ascomata perithecialia, dissita vel nonnunquam conferta, rare confluentia, immersa vel partim exposita, globosa vel depresse globosa, unilocularia, glabra, ostiolata, rostellata; rostrum breve, teretes, apice obtusis vel acutis, pallide brunneis, sparsim septatis, minute verruculosis tricholomatibus paratus; paries e externe "textura angulari" cum cellulis crassitunicatis et atrobrunneis, interne "textura prismatica" cum cellulis comparate tenuitunicatis et pallide brunneis vel subhyalinis composita; cellulae parietis in parte rostrii atrantes; ostiolum circulare vel ovale. Paraphyses sparsae, quam ascis longiores, filamentosae, rare ramosae, septatae, hyalinae, laeves. Asci in unum latum stratum orientes, unitunicati, subclavati ad plerumque saccati, uno stipite brevi et lato praediti, octospori; annulus apicalis amyloideus. Ascosporae ordinatim vel irregulatim biseriatae, oblongae vel ellipsoideae, euseptatae, cellulae inaequales, primum hyalinae, post maturitatem melleae vel atrobrunneae et concolorae, verruculosae. Conidiomata stromatica, pycnidioidea, dissita vel gregaria, primum immersa postea exposita, unilocularia, glabra, brunnea vel atrobrunnea, sine ostiolo, sed irregulatim findentia; paries ex "textura angulari" e cellulis externe crassitunicatibus et brunneis, interne e cellulis progressive tenuitunicatibus et pallescentibus composita. Conidiophora circa cavitatem conidiomatis enascentia, cellulae conidiogenae redacta, in muco involuta. Cellulae conidiogenae annellidicae, discretae, subcylindraceae vel ampulliformes, hyalinae, laeviae. Conidia blastico-annellidica, cylindracea ad fusiformia, euseptata cum cellulis inaequalibus, cellulis medianis flavide brunneis ad subhyalinis, cellulis extimis pallidioribus vel hyalinis, laevia, apice appendicibus ferentia; appendices duae vel tres, filiformes, simplices, vulgo bifurcatae vel trifurcatae, unaquaeque ab locis seorsim oriundae.

Species typica: Ellurema indica (PUNITH.) NAG RAJ & KENDRICK

Corticolous to foliicolous. – Ascomata sometimes clustered, rarely confluent, immersed or becoming partly exposed, globose to depressed globose, unilocular, glabrous, ostiolate, beaked; beak short, terete, lined apically with acute to blunt, pale brown, sparsely septate hairs with verruculose walls at the base; wall of an external "textura angularis" with thick-walled, dark cells and an internal "textura prismatica" with relatively thin-walled, pale brown to subhyaline cells; cells darker in the neck region; ostiole circular or oval. – Paraphyses scanty, longer than asci, filamentous, septate, rarely branched, hyaline, smooth-walled. – Asci in a broad basal



Fig. 1: *Ellurema indica* on leaves of *T. indica*: a. Vertical section of a perithecium. – b. Enlarged sectional view of a perithecium showing tissue details. – c. Two mature asci. – d. Enlarged view of ascus apex. – e. Mature ascospores. – f. Conidiogenous cells with a mature conidium. – g. Mature conidium.

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layer, unitunicate, subclavate to mostly saccate with a short stalk and broad base from crozier attachment, with an apical amyloid ring, 8-spored. – Ascospores regularly or irregularly biseriate, oblong to ellipsoid, euseptate, cells unequal, hyaline but after maturity honey brown to dark brown and concolorous, wall somewhat thick and verruculose.

Conidiomata stromatic, pycnidioid, scattered to gregarious, immersed at first but eventually exposed, unilocular, glabrous, brown to dark brown, lacking an ostiole but opening by irregular splits in the upper wall and overlying host tissue; wall of "textura angularis", cells in the outer layers thick-walled, brown, merging with thin-walled and progressively lighter coloured cells in the inner layers. – Conidiophores arising all around the cavity of the conidiogenous cells annellidic, discrete, subcylindrical to ampulliform, hyaline, thin-walled, smooth. – Conidia blastic-annellidic, cylindrical to fusiform, euseptate, cells unequal, median cells yellowish brown to subhyaline, end cells lighter or hyaline, smoothwalled, bearing apical appendages; appendages 2–3, filiform, flexuous, simple but usually bi- or tri-furcate, each originating independently of the others from distinct loci.

Type species: Ellurema indica (PUNITH.) NAG RAJ & KENDRICK

Ellurema indica (PUNITH.) NAG RAJ & KENDRICK comb. nov. – Figs. 1–20.

≡ Massaria indica PUNITH., Mycol. Pap. 119: 6 (1969)

≡ Lepteutypa indica (PUNITH.) von ARX, Genera of fungi sporulating in pure culture, I Edn., Lehre: 118 (1970)

Corticolous to foliicolous. - Ascomata perithecial, discrete to occasionally clustered, rarely confluent, immersed to partly exposed, globose to depressed globose, 100-240 µm wide, 100-200 µm deep, unilocular, glabrous, ostiolate, beaked; beak short, terete, lined apically with acute to blunt, pale brown to subhyaline, sparsely septate hairs with verruculose walls at the base; wall 20-25 µm thick, of an external "textura angularis" with thick-walled, dark cells and an internal "textura prismatica" with relatively thinwalled, subhyaline to hyaline cells; cells darker in the neck region and around the ostiole; ostiole circular or oval, papillate, up to 20 µm diam. – Paraphyses scanty, longer than asci, filamentous, septate, rarely branched, hyaline, smooth. – Asci arising in a broad basal layer, unitunicate, subclavate to saccate with a short stalk and broad base, an apical apparatus consisting of a thick pulvillus and an amyloid ring, 8-spored, $68-98 \times 20-31$ ($\bar{x} = 85 \times 24.5$) µm. – Ascospores regularly or irregularly biseriate, oblong to ellipsoid with obtuse or somewhat rounded ends, 3-euseptate, cells unequal,

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Figs. 2–9: *Ellurema indica* on leaves of *T. indica* (All with Nomarski interferencephase contrast): Figs. 2 & 3: Vertical sections of perithecia, ca. \times 142. – Fig. 4. Enlarged sectional view of an ascoma showing tissue details of the wall and neck region, ca. \times 360. – Figures 5, 7 & 8. Ascus apex stained with KI in lactic acid mount, ca. \times 940. – Fig. 6. Ascus apex without staining but in lactic acid mount, ca. \times 940. – Fig. 9. Ascospore. Note the septal pores, ca. \times 940. usually with the two central cells (each 4–4.5 μm long) shorter than the end cells (each 9.5–10 μm long), wall somewhat thick, slightly constricted at the septa, vertuculose from early phase of development, hyaline but becoming honey brown to dark brown and concolourous after maturity, 23–30 \times 9–12 ($\bar{x}=26.5\times10.5$) μm ; mean ascospore length/width ratio = 2.5 : 1.

Conidiomata stromatic, pycnidioid, scattered to gregarious and often confluent, subepidermal in origin, immersed to partly exposed, subglobose to broadly conical, 110-210 µm wide, 90–180 µm deep, unilocular, glabrous, brown to dark brown, lacking an ostiole but dehiscing by irregular splits in the apical wall and overlying host tissue; wall 10-20 µm thick, of "textura angularis", cells moderately thick-walled and brown in the outer layers, and progressively thin-walled and lighter in the inner layers. - Conidiophores lining the cavity of the conidioma, reduced to conidiogenous cells, invested in mucus. - Conidiogenous cells annellidic, discrete, lageniform to ampulliform, hyaline, smooth, $7-12 \times 3-5$ ($\bar{x} = 10 \times 4$) µm with up to 3 annellations. – Conidia blastic-annellidic, cylindrical to fusiform or obclavate with a narrow truncate base and a more or less rounded apex, much broader in the basal part (5.6–6 μ m) than in the apical part (4 μ m), 3-euseptate, cells unequal, wall smooth and more or less constricted at the septa. $(21-)24.5-36 \times 4.5-6$ ($\bar{x} = 30 \times 5.2$) µm, bearing apical appendages; basal cell cylindrical, subhyaline to hyaline, 6-11 $(\bar{x} = 8.5) \mu m$; 2 median cells doliiform, yellowish brown with slightly thicker walls than the end cells, together 9–16 ($\bar{x} = 12$) µm long (suprabasal cell 4.5–10 ($\bar{x} = 7.2$) μ m; subapical cell 4.5–7 $(\bar{x} = 5.7) \,\mu\text{m})$; apical cell subcylindrical, subhyaline to hyaline, (6-)8-9.5 ($\bar{x} = 8.7$) μm ; apical appendages 2-4, originating at the conidium apex at separate loci, initially tubular, with the lumen ultimately occluded, unbranched to a length of 2-4 µm from the point of origin and then becoming bi- or tri-furcate, branchlets filiform, flexuous; 20–45 ($\bar{x} = 33$) µm long; mean conidium length/ width ratio = 5.8:1.

Habitat: On bark and fallen leaflets of Tamarindus indica.

Specimens examined: 1. IMI 136542 (type), isolated from bark of *T. indica*, Bangalore, India, 18. XI. 1968, AGNIHOTHRUDU. – 2. UW (F), on fallen, decaying leaflets of *T. indica*, Hebbal, Bangalore, India, 25. VII. 1967, NAG RAJ. – 3. IMI 142374, 7-day old PDA culture isolated from specimen cited in 2.

Known distribution: India.

The illustrations in Figs. 1-20 and descriptions of the fungus given above are based on the field collection cited as specimen No. 2. In his account of *M. indica* and its anamorph, PUNITHALINGAM (1969)

authenticated this culture. He adequately described the behaviour of the fungus on synthetic agar cultures, established the homothallic nature of the fungus by cultural studies and applied the binomial *Hyalotiopsis subramanianii* to the anamorph. He designated the same agar culture isolate (IMI 136542) as the type specimen of the



Figs. 10–14: Ellurema indica on leaves of *T. indica* (All with Nomarski interferencephase contrast): Fig. 10. Ascus in lactic acid mount without staining, $\times 600$. – Figs. 11 & 12. Ascospores. Note wall ornamentations in Fig. 12, ca. $\times 940$. – Fig. 13. Vertical section of a conidioma dehiscing wide open, ca. $\times 142$. – Fig. 14. Mature conidium still attached to the conidiogenous cell. Note the wall thickenings of the central cells and the apex of the apical cell. Arrow indicates the annellations on the conidiogenous cell, $\times 940$. teleomorphic M. indica and the anamorphic H. subramanianii, and also omitted the ascospore dimensions from the description of the fungus. While independent observations of NAG RAJ (unreported data) on cultural characteristics of the fungus are comparable to those of Punithalingam (1969), we can concur neither with PUNITHALINGAM'S taxonomic disposition of the fungus as a member of the Pleosporaceae in the bitunicate ascomycetes, nor entirely with that by von Arx (1970), who redisposed it in Lepteutypa PETRAK in the Amphisphaeriaceae (Sphaeriales). The nomenclatural anomalies involving the binominal applied to the anamorph have been discussed in detail by THAUNG (1975) and NAG RAJ (1975). Because of the unique morphology of the anamorph, we believe that M. indica belongs more properly in a genus other than, but closely related to, Lepteutypa; we also believe that the problems of typification could be overcome by applying the name *E*. *indica* to the holomorph rather than to the teleomorphic phase of the fungus, since the genetic connection between the anamorph and teleomorph has been established beyond any shadow of doubt, and since the same isolate was originally designated as the type of the teleomorph as well as the anamorph.

PETRAK (1923) introduced the generic name Lepteutypa for a single species: L. fuckelii (NITSCHKE) PETRAK, relocated from Massaria. To-date a total of about nine species, most of them segregants from other genera, have been placed in the genus. Of these, L. cisticola ADE apud PETRAK (1929), L. fusispora PETRAK (1953) and L. biseptata PETRAK (1954) have received little attention in recent times (mostly because some of PETRAK's type specimens have been inaccessible till now), while L. hippophaes (Sollmann) von ARX (SHOEMAKER & MUELLER, 1965; SWART, 1973) and L. cupressi (NAT-TRASS, BOOTH & SUTTON) SWART (1973) have been studied in greater detail. We have not been able to locate the type specimen of L. biseptata, but we have examined specimens of L. fuckelii, L. cisticola, and L. fusispora in PETRAK'S herbarium at W through the courtesy of Dr. U. PASSAUER. We find that L. fusispora is not congeneric with L. fuckelii: the asci do not possess an amyloid apical ring typical of a species of *Lepteutypa* and the ascospores are also atypical. An account of this fungus will be published elsewhere. Our studies of L. fuckelii, however, confirm the findings of SHOEMAKER & MUELLER (1965) and of SWART (1973). The following account of L. cisticola is of greater interest and relevance to this contribution.

Figs. 15–20: *Ellurema indica* on leaves of *T. indica* (All with Nomarski interferencephase contrast): Fig. 15. Vertical section of a pycnidioid conidioma, \times 189. – Figs. 16–18. Conidia in various stages of development. Arrow marks the annellations, \times 1250. – Figs. 19–20. Mature conidia, \times 800.

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PETRAK (1929) published an account of Adea canariensis PETRAK and suggested that it was possibly the anamorph of L. cisticola ADE. SUTTON (1977) speculated that Adea was probably a synonym of Seiridium NEES ex FR. The packet of the type specimen of A. canariensis contains, in addition to a few twigs of the host, PETRAK's notes concerning the two taxa. According to these notes, PETRAK intended to divide the collection between "Massaria-Lepteutypa" (as No. 46) and "Monochaetia-artig" (as No. 47) possibly as types of the two taxa, but never did so. He included, instead, the names "Massaria cisticola ADE n. sp." and "Adea canariensis PETR. n. gen., n. sp." on the single packet of specimen, thus making it the type of both taxa. In his published account of L. cisticola he stated that since the fungus must be perceived as a member of Sphaeriaceae it cannot belong in the Dothidealean genera, Massaria de Nor. or Leptosphaeria CES. & de Not., and that it was best placed in Lepteutupa. Dr. PASSAUER has indicated that a separate type for L. cisticola does not exist in W. We have, therefore, segregated a small part of the type specimen of A. canariensis bearing L. cisticola as well and designated it as the lectotype of the latter. The following accounts of the teleomorph and anamorph and the illustrations in Figs. 21–40 are based on these two specimens.

2. Lepteutypa cisticola Ade apud PETRAK, Engler's bot. Jahrb. Beibl. 142: 109 (1929) – Figs. 21–40

Caulicolous. - Ascomata perithecial, mostly gregarious in groups of 3–5 per pustule, immersed to partly erumpent, depressed globose, 600-800 um diam, 300-450 um deep, with a slightly papillate ostiole in a very short neck protruding beyond the host periderm: wall up to 80 um thick, of a thin external "textura angularis" and an internal, thick "textura prismatica", cells thinwalled and lighter in the inner layers, somewhat darker near and around the ostiolar canal: ostiolar canal lined with periphyses: ostiole circular or oval, 20–25 µm diam. – Paraphyses intermixed with asci, persistent, filamentous, more or less attenuated toward the apex, simple, rarely branched, septate, hyaline, smooth, longer than the asci, 3.5–5.5 µm wide. – Asci unitunicate, subcylindrical to clavate, hyaline, smooth, with an apical apparatus consisting of a pulvillus and an amyloid apical ring, 8-spored, $150-220 \times 11-13$ $(\bar{x} = 12) \mu m$. – Ascospores uniseriate, oblong to ellipsoidal with obtuse or rounded ends, euseptate, with 3 (or occasionally 2 transverse and 1 oblique) septa, cells unequal usually with the two middle cells shorter than the end cells, brown to dark brown, wall thick, smooth and occasionally constricted at the septa, $18-26(-28) \times 8-10$ ($\bar{x} = 22 \times 9$) um; mean ascospore length/width ratio = 2.4 : 1.

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Fig. 21: Lepteutypa cisticola (a–f) and Seiridium canariense (g–h) ex type in W: a. Vertical section of an ascoma. – b, c. Enlarged sectional view to show tissue details of the basal wall and ostiolar region of the perithecium. – d. An ascus and a paraphysis. – e. Ascus apex. – f. Mature ascospores. – g. Conidiophores with a developing conidium. – h. Mature conidium.

Habitat: on Cistus monspeliensis.

Specimen examined: W (Lectotype), Barranco Anadigo, Tenerif, Canary Isl., 27. V. 1926, A. ADE.

PETRAK (1929) proposed Adea to accommodate the anamorph found closely associated with L. cisticola. He sought to differentiate the genus from the somewhat similar taxa of Monochaetia (SACC.) ALLESCH. by the presence of sterile elements he called "pseudophyses" intermixed with the conidiophores in the conidiomata of Adea canariensis. We believe that such elements are not sterile but bear conidia at one time or another (cf. Fig. 21, g) and are encountered in several species of Seiridium. Adea, therefore, has to be treated as a synonym of Seiridium. Accordingly, we describe:

 Seiridium canariense (Petrak) Nag Raj & Kendrick, comb. nov. – Figs. 21, 29–40

 $\equiv Adea \ canariensis$ Petrak, Engler's Bot. Jahrb. Beibl. 142: 144 (1929)

Caulicolous. – Conidiomata stromatic, pycnidioid, scattered to gregarious, subperidermal in origin, innate-erumpent, linear to oval in outline, broadly conical in sectional view, conidiomatal cavity replete with gel. crateriform when dry. 250-400 um wide. 100-300 µm deep, unilocular, glabrous, dark brown to black; basal stroma 15-20 µm thick, of "textura angularis", cells thick-walled and pale brown. - Conidiophores lining the cavity of the conidioma, filamentous and appearing paraphysoid, septate, branched, subhyaline at the base, hyaline above, smooth, up to 120 µm long, invested in mucus. - Conidiogenous cells annellidic, terete to subcylindrical, hyaline, smooth, $8-20 \times 1.5 - 2.5$ ($\bar{x} = 13.6 \times 2$) µm, proliferating percurrently up to 4 times. - Conidia blastic-annellidic, fusiform to ellipsoid, 5-distoseptate, $26-32 \times (10-)11-13$ $(\bar{\mathbf{x}} = 28.5 \times 12)$ µm, bearing appendages; basal cell abconic with a truncate base, periclinal wall thin at the base but becoming progressively thicker above, contiguous with the thick periclinal wall of the median cells, subhvaline above, hvaline below, 2-4 ($\bar{x} = 3$) µm long; 4 median cells doliiform to short cylindric, thick-walled, brown to dark brown, unequal, wall smooth and sometimes slightly constricted at the septa, septal pores distinctly visible, the 4 median cells together 19–24(–25.5) ($\bar{x} = 21.5$) µm long (second and fifth cells from base 5–7 ($\bar{x} = 6$) μm , third cell from base 4.5–6 ($\bar{x} = 5.2$) μm ,

Figs. 22–28: Lepteutypa cisticola ex type in W (All with Nomarski interference phase contrast): Fig. 22. Vertical section of a perithecium, \times 90. – Figures 23–25. Enlarged sectional views of a perithecium showing tissue details of the wall and ostiolare region. – Figs. 23 & 25: \times 360; Fig. 24: \times 142. – Figs. 26 & 28. Asci and paraphyses, \times 180. – Fig. 27. Ascus apices in lactic acid mount stained in KI, \times 1500.

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fourth cell from base 4–6 ($\bar{x} = 5$) µm); apical cell short conic, periclinal wall thick below becoming progressively thinner above, smooth, subhyaline below, hyaline above, 2–3.5 ($\bar{x} = 2.7$) µm long; appendages tubular, attenuated, apical appendage single, unbranched, 1.5–5 ($\bar{x} = 3.2$) µm long; basal appendage, when present, centric and then occasionally oblique, single, unbranched, 1–4 ($\bar{x} = 2.5$) µm long; mean conidium length/width ratio = 2.4 : 1.

Habitat: On twigs of Cistus monspeliensis.

Specimen examined: W (Holotype), Barranco Anadigo, Tenerif, Canary Isl., 27. V. 1626, ADE (No. 17394, in PETRAK Pilzherbarium) in association with *Lepteutypa cisticola*, *Coleophoma* sp., *Cytospora* sp. and *Eutypella* sp.

SHOEMAKER & MUELLER (1965) have established, by cultural studies, a genetic connection between L. hippophaes and an unnamed Seiridium-like anamorph. SWART (1973) inferred a connection between L. cupressi and Seiridium unicorne (COOKE & ELLIS) SUTTON from a close association between the teleomorph and the anamorph in collections from Australia. Subsequently, BOESEWINKEL (1983) published the combination S. cupressi (GUBA) BOESEWINKEL for the anamorph of L. cupressi and considered it different from S. cardinale (WAGENER) SUTTON & GIBSON and S. unicorne. These findings, and the close association between L. cisticola and S. canariense, prompt us to concur with PETRAK (1929) that the two are probably related. We give below a key to the accepted species of Lepteutupa and a synopsis indicating the status of the other species previously considered to belong in the genus. Similarities and dissimilarities in morphological features of E. indica and species of Lepteutypa are listed in Table 1, justifying our rationale for segregating the former from the latter.

Key to species of Lepteutypa

A. Mean ascospore length/width ratio = 2.7 : 1 or more
A. Mean ascospore length/width ratio less than 2.5 : 1 C
B. Asci 8–10 μm wide; ascospores with granular deposit in central
line of septa, octagonal in transverse section, 6–6.5 µm wide;
anamorph unknown
B. Asci 10–15 μm wide; ascospores without granular deposit in
central line of septa, not octagonal in section, 7–9 μ m wide;
anamorph Seiridium-like, with 5-celled conidia. L. hippophaes
C. Mean dimensions of asci $192 \times 12 \ \mu m$, of ascospores $22 \times 9 \ \mu m$;
presumed anamorph: Seiridium canariense with a mean overall
conidium width of 12 μ m, conidial septal spores distinctly visible .
L. cisticola

C. Mean dimensions of asci $100 \times 11 \,\mu m$, of ascospores

 $16.5 \times 7.5 \ \mu m$; presumed anamorph: *Seiridium cupressi* with a mean conidium width of 8 $\ \mu m$; conidial septal pores not distinctly visible *L. cupressi*

Features.	Lepteutypa spp.	Ellurema indica
Ascomata	Perithecial, mostly in groups of 3–5 per pustule, ostiolar canal lined by periphyses.	Perithecial, solitary, some- times clustered; beaked, beak lined apically with acute to blunt, pale brown, sparsely septate hairs.
Paraphyses	abundant, longer than asci.	Scant.
Asci	Unitunicate, subcylindrical to clavate, apical ring KI+	Unitunicate, saccate to sub- clavate, apical ring KI+.
Ascospores	Uniseriate, 3-septate, dark brown to brown, smooth.	Biseriate, 3-septate, hyaline (honey brown after maturity, but usually subsequent to dis- persal), verruculose.
Anamorph	Where known, Seiridium spp.	Hyalotiopsis subramanianii
Conidiophores	Usually branched and septate, sometimes reduced to con- idiogenous cells.	Usually reduced to con- idiogenous cells.
Conidiogenous cells.	Annellidic, terete to subcylin- drical.	Annellidic, ampulliform to subcylindrical.
Conidia	Fusiform to ellipsoid, with 3–5 distosepta, brown to dark brown, bearing apical and/or basal appendages.	Cylindrical to fusiform, with 3 eusepta, median cells yellow- brown to subhyaline, end cells lighter, bearing appendages at the apex only.
Appendages: Apical	Single, tubular, unbranched, attenuated, not separated from the apical cell by a sep- tum, lumen not occluded.	2–3, filiform, flexuous, usually bi- or tri-furcate, rarely sim- ple, originating at several loci at the thickened conidium apex, lumen occluded at maturity.
basal	Often absent; when present, centric, tubular, attenuated, unbranched, variable in length lumen not occluded.	Absent.

Table 1. Comparison of morphological features of Lepteutypa spp. and Ellurema indica.

Status of other species of Lepteutypa

 L. biseptata PETRAK, Sydowia 8: 197 (1954) On Daviesia latifolia, New South Wales, Australia. – Not examined.Whereabouts of the type specimen unknown. Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.



Figs. 29–40: Lepteutypa cisticola (29–33) and Seiridium canariense (34–40) ex type in W (All with Nomarski interference-phase contrast): Fig. 29. Ascus apex in lactic acid mount, stained in KI, × 1500. – Fig. 30. Ascus apex in lactic acid mount, unstained, × 1500. – Figs. 31–33. Mature ascospores, × 1500. – Figs. 34 & 35. Vertical sections of conidiomata. Note the gel-filled conditionatal cavity, × 142. – Fig. 36. Conidiophores, ca. × 560. – Figs. 37–39. Conidiogenous cells, and developing conidia. Arrows mark percurrent proliferations, × 1500. – Fig. 40. Mature conditum, × 1500.

 L. concentrica (BARR) von ARX, The genera of fungi sporulating in pure culture. 3rd Edn.: 174 (1981)
 Excluded from Lepteutypa. This is Pestalosphaeria concentrica BARR, and differs from accepted species of Lepteutypa in the

fact that the anamorph belongs in *Pestalotiopsis* (see NAG RAJ, 1985).

- 3. L. elaeidis (BOOTH & ROBERTSON) VON ARX, ibid.: 176 (1981). Excluded from Lepteutypa. – This is Pestalosphaeria elaeidis BOOTH & ROBERTSON) van der AA with the anamorph belonging in Pestalotiopsis (see NAG RAJ, 1985).
- 4. L. fusispora PETRAK, Sydowia 7: 387 (1953)
 On Wistaria sp., Hawaii. Excluded from Lepteutypa. Not congeneric with L. fuckelii.
- 5. *L. indica* (PUNITHALINGAM) von ARX, The genera of fungi sporulating in pure culture. 1st Edn.: 118 (1970)
 - ≡ *Ellurema indica* (PUNITHALINGAM) NAG RAJ & KENDRICK; see above.

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References

- ARX, J. A. von (1970). Genera of fungi sporulating in pure culture. 1. Edn. J. Cramer, Lehre, 288 pp.
- BOESEWINKEL, H. J. (1983). New records of the three fungi causing cypress canker in New Zealand, Seiridium cupressi (GUBA) comb. nov. and S. cardinale on Cupressocyparis and S. unicorne on Cryptomeria and Cupressus. – Trans. Br. mycol. Soc. 80 (3): 544–547.
- NAG RAI, T. R. (1975). Genera coelomycetum. XI. Hyalotia, Hyalotiella and Hyalotiopsis. - Can. J. Bot. 53: 1615–1624.
- (1985). Redisposals and redescriptions in the Monochaetia-Seiridium, Pestalotia-Pestalotiopsis complexes. II. Pestalotiopsis besseyeii (GUBA) comb. nov. and Pestalosphaeria varia sp. nov.-Mycotaxon 22: 52–63.

PETRAK, F. (1923). Mykologische Notizen. VI. - Ann. Mycol. 21: 182-335.

- (1929). Mykologische Beiträge zur Flora der kanarischen Inseln. Bot. Engler's Jahrb. Syst. Beibl. 142: 93–160.
 - (1953). Beiträge zur Pilzflora von Hawaii. Sydowia 7: 381–409.
 - (1954). Beiträge zur Pilzflora Australiens. Sydowia 8: 192–220.

PUNITHALINGAM, E. (1969). Studies on Sphaeropsidales in culture. – Mycol. Pap. 119: 1–24.

SHOEMAKER, R. A. & E. MUELLER (1965). Types of the pyrenomycete genera Hymenopleella and Lepteutypa. – Can. J. Bot. 43: 1457–1460.

SUTTON, B. C. (1977). Coelomycetes. VI. Nomenclature of generic names proposed for coelomycetes. – Mycol. Pap. 141: 1–253.

SWART, H. J. (1973). The fungus causing cypress canker. – Trans. Br. mycol. Soc. 61(1): 71–82.

THAUNG, M. M. (1975). Miscellaneous fungi from Burma. – Trans. Br. mycol. Soc. 64: 307–312.

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