ISSN: 2320-5407

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR-51803 Date: 23/05/2025

Title: Three new species of Meliolaceous fungi from Kolhapur District (Maharashtra)

Recommendation:

Accept as it is .....Yes.....

Accept after minor revision.....

Accept after major revision .....

Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality	•			
Techn. Quality	•			
Clarity	•			
Significance	•			

Reviewer Name: Dr. Sireesha Kuruganti **Date:** 23/05/2025

Reviewer's Comment for Publication.

(*To be published with the manuscript in the journal*)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.

This manuscript is well-prepared and presents significant findings in the field of mycology. The descriptions of the new species are detailed, supported by microscopic measurements, illustrations, and comparisons with closely related species. The methodology is sound, and the conclusions are justified by the presented data.

Detailed Reviewer's Report

This manuscript presents a study on Meliolaceous fungi from the Kolhapur District of Maharashtra, India. It describes and illustrates three new species: Appendiculella hosagoudiana, Asteridiella indicae, and Irenopsis leeae-indicae. The review below provides an in-depth analysis of the manuscript.

Detailed Review

Abstract

* Line 6: The abstract clearly states the purpose of the study: to explore black mildew microfungi from the order Meliolales in the forests of Kolhapur district.

* Line 8: It concisely mentions the key finding: the description and illustration of three new species belonging to the genera Appendiculella, Asteridiella, and Irenopsis.

* Line 9: The names of the new species are provided: Appendiculella hosagoudiana, Asteridiella indicae, and Irenopsis leeae-indicae.

* Suggestion: The abstract is well-written and informative.

Keywords

* Line 10: The keywords "Appendiculella, Asteridiella, Black mildews, Irenopsis, Kolhapur, Meliolales" are relevant and appropriate for indexing.

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Introduction
* Lines 11-15: The introduction provides geographical and climatic context for Kolhapur district.
* Line 15: The aim of the study, to explore black mildew microfungi, is reiterated.
* Lines 16-18: Specific details about the Patgaon study site, including its coordinates, altitude, and vegetation type, are given.
* Lines 19-20: The text describes Meliolales fungi as obligate biotrophs typically found on dicotyledonous plants.
* Line 20: The high degree of host specificity is mentioned, supported by several citations.
* Lines 22-25: The authors state that three collected black mildew specimens were found to be undescribed and are presented as new species.
* Suggestion: The introduction effectively sets the stage for the research.

Materials and Methods
* Lines 26-27: The host plants, Microcos paniculata L. and Leea indica (Burm.f.) Merr., are specified, and the collection month (December 2019) is mentioned.
* Lines 27-30: Collection and processing methods for specimens are described, including the use of pre-sterilized polythene bags, identification using regional floras, and deposition in standard size packets.
* Lines 31-33: Slide preparation techniques are detailed, including treatment with 5% KOH and staining with cotton blue in lactophenol. method is cited as Patil and Patil (2017).
* Lines 34-35: Identification relied on monographs by Hansford (1961), Hosagoudar (1996, 2013), and Hosagoudar and Agrawal (2008).
* Lines 36-39: Information on deposition of data and specimens is provided: Mycobank for online data, and Agharkar Research Institute, Pune for physical specimens, with accession numbers obtained.
* Lines 37-39: Photomicrography details using a Leica DM 2000 fluorescence microscope are given.
* Suggestion: The Materials and Methods section is clear and provides sufficient detail for reproducibility.
* Line 31: "5 & KOH" should likely be "5% KOH".
* Line 39: "Abbot DEC 2000" is likely the digital camera model. It might be better phrased as "equipped with an Abbot DEC 2000 digital camera."

Results and Discussion
1. Asteridiella indicae Bharti S. Dopare and Chandrahas R. Patil sp. nova.
* Line 42: Mycobank number is provided.
* Line 43: Etymology clearly states the specific epithet is based on the host species name.
* Lines 44-49: Detailed morphological description of colonies, mycelial hyphae, appressoria (including stalk and head cells), phialides, perithecia, and ascospores with measurements is provided.
* Lines 50-52: Specimen examination details include the host plant Leea indica (Burm. F.) Merr. cite_start, collection location (Patgaon with coordinates and altitude), date (1/12/2019), and collector (B.S. Dopare).
* Line 53: Distribution is stated as India (Maharashtra, Tamil Nadu).
* Lines 55-60: Taxonomic notes compare the new species with Asteridiella leeicola Hansf., highlighting differences in hyphal branching, cell sizes, appressoria characteristics, phialide size, perithecia size, and ascospore morphology and size. The authors justify it as a new species and a first report from India on this host.
* Line 46: "sub straight" is used. "Sub-straight" or "nearly straight" might be more conventional.
* Line 47: "unilateral at acute angles" is clear.
* Line 48: "antrorse" is a good descriptive term.
* Line 51: "MSL" (Mean Sea Level) is standard. "MH 2120" is likely the herbarium accession number.

2. Appendiculella hosagoudiana Bharti S. Dopare and Chandrahas R. Patil sp. nova.
* Line 63: Mycobank number is provided.
* Line 65: Etymology clearly states the specific epithet honors scientist V. B. Hosagoudar.

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* Lines 66-72: Detailed morphological description of colonies, mycelial hyphae, appressoria (stalk and head cells), phialides, perithecia (including appendages), and ascospores with measurements.
* Lines 73-76: Specimen examination details include the host plant Microcos paniculata (=Grewia nervosa) L. (Malvaceae), collection location (Patgaon with coordinates and altitude), date (1/12/2019), and collector (B.S. Dopare).
* Line 77: Distribution is stated as India (Maharashtra).
* Lines 78-81: Taxonomic notes emphasize the lack of previous reports of Appendiculella on hosts of the family Tiliaceae (Malvaceae includes Tiliaceae in modern systems). Based on host specificity, it's treated as a new species and a first report on this host from India.
* Line 67: "opposite to irregular, acute to wide angles" is descriptive.
* Line 71: "larviform" appendages is a good descriptor.
* Line 74: The synonymy for the host plant is useful. "MH 2256" is likely the herbarium accession number.

3. Irenopsis leeae-indicae Bharti S. Dopare and Chandrahas R. Patil sp. nova.
* Line 83: Mycobank number is provided.
* Line 84: Etymology clearly states the specific epithet is based on the genus and species of the host.
* Lines 85-93: Detailed morphological description of colonies, mycelial hyphae, appressoria (stalk and head cells), phialides, perithecia (including setae), and ascospores with measurements.
* Lines 94-97: Specimen examination details include the host plant Leea indica (Burm.f.) Merr. cite_start, collection location (Patgaon with coordinates and altitude), date (1/12/2019), and collector (B.S. Dopare).
* Line 97: Distribution is stated as India (Maharashtra, Tamil Nadu).
* Line 88: "closely antrorse" is clear.
* Line 91: "verrucose" for perithecia is descriptive.
* Line 96: "MH 2120" again, indicating the same collection event as for Asteridiella indicae on the same host. This is plausible.

Table 6: Comparison between Irenopsis spp. and present collection Irenopsis leeae-indicae sp. nova.
* Lines 108-109, Page 4 Table: The table effectively compares key taxonomic characters (Host, Colonies, Hyphae, Appressoria, Phialides, Perithecia, Perithecial setae, Ascospores) of Irenopsis leeae Hansf., I. leeae var. javensis, and the new species I. leeae-indicae.
* Suggestion: The table is very useful for highlighting the differences and supporting the claim for a new species.
* In the table, under "Present collection I. leeae- indicae sp. nova.", for "Hyphae", the cell dimensions are "20-29 x 7-8 µm". In the main text (Line 87), it is "20-29 \\times 7-8 \\mu m". This is consistent.
* In the table, under "Present collection I. leeae- indicae sp. nova.", for "Appressoria", head cell dimensions are "17-21 \\times 14-16 \\mu m". In the main text (Line 89), it is "17-21 \\times 14-16 \\mu m". This is consistent.
* In the table, for "Perithecial setae", it states "up to 9 in number, up to 110 \\times 9-13 \\mu m". In the main text (Line 92), it is "setae grouped around perithecium... 110 \\times 9-13 \\mu m long". The "up to 9 in number" is mentioned in the table (Line 105 of the document refers to "perithecial setae 9"). This seems consistent.
* Minor discrepancy: In the table for "Present collection I. leeae- indicae sp. nova.", Phialides are "14-23 \\times 5 \\mu m". In the main text (Line 90), it is "14-23 \\times 5 \\mu m". This is consistent.

Figures
* Page 6, Fig. 1 (Asteridiella indicae): Shows infected leaf (A), mycelium with appressoria and phialides (B & E), perithecium (C), and ascospore (D & F). The images and line drawings are supportive of the description.

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* Page 7, Fig. 2 (Appendiculella hosagoudiana): Shows infected leaf (A), mycelium with appressoria and phialides (B), perithecium with appendages (C & E), and ascospore (D & F). The images and line drawings are supportive.
* Page 8, Fig. 3 (Irenopsis leeae-indicae): Shows infected leaf (A), mycelium with appressoria and phialides (B & E), perithecium (C), and ascospore (D & F). The images and line drawings are supportive.
* Suggestion: All figures are relevant and adequately captioned. The scale bars are present, which is crucial. The quality of micrographs appears sufficient for identification. Line drawings complement the photomicrographs well.

Acknowledgment

* Lines 51-52: Proper acknowledgments are made.

References

* Lines 53-62: The references list key monographs and papers relevant to Meliolales taxonomy. The formatting seems consistent.
* Line 54: DOI is provided for one reference, which is good practice.
* Line 57: DOI is provided for one reference.

General Comments on Language and Formatting

* The language is generally clear and follows a scientific writing style.
* The use of µm for micrometers is appropriate.
* Latin binomials are italicized.
* Author citations for species names are provided.
* The term "sp. nova." is correctly used for new species.
* The manuscript is well-structured with standard sections (Abstract, Introduction, Materials and Methods, Results and Discussion, Acknowledgment, References).
* Line numbering is present in the source PDF, which is helpful for review.
* Line 17: "flourished well" could be "flourish well" or "are abundant".
* Line 31: "5 & KOH" should be "5% KOH".
* Line 33: "semipermanent" could be "semi-permanent".
* Line 38: "morpho-taxonomical" should be "morphotaxonomic" (as used elsewhere, e.g., line 57).
* Line 46: "sub dense" could be "subdense".
* Line 46: "Mycelial hyphae sub straight" could be "Mycelial hyphae sub-straight" or "nearly straight".
* Line 56: "differs from former species" is correct.
* Line 58: "larger insize" should be "larger in size".
* Line 60: "it is reported as species new to science and found to be reported first time from India" is a bit redundant. "it is therefore reported as a new species, representing the first report from India on this host" or similar.
* Line 70: "measuring to 318 \\mu m" should be "measuring up to 318 \\mu m" or simply "318 \\mu m".
* Line 80: "Therefore, based on the host specificity, the present collection is treated as species new to science and it is for the first reported on the present host from India." Similar to the comment for Line 60, this could be more concise: "Therefore, based on host specificity, the present collection is treated as a new species, representing the first report on this host from India."
* Line 85: "Epiphyllous colonies, dark black" is fine.
* Line 103: "does not matches" should be "does not match".
* Line 103: "quietly differs" should probably be "quite different" or "significantly differs".
* Line 105: "while perithecial setae 9" seems to be missing a verb, perhaps "while there are 9 perithecial setae" or "with 9 perithecial setae". This is clarified in the table.

Scientific Merit

* The discovery and description of three new fungal species is a valuable contribution to mycology, particularly to the understanding of biodiversity in the Kolhapur district.

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* The host specificity of Meliolales fungi is a known characteristic, and the authors use this, along with morphological differences, to justify the new species.
* The comparisons with previously described species are detailed, especially for Irenopsis leeae-indicae with the inclusion of Table 6.

Conclusion of Review

This manuscript is well-prepared and presents significant findings in the field of mycology. The descriptions of the new species are detailed, supported by microscopic measurements, illustrations, and comparisons with closely related species. The methodology is sound, and the conclusions are justified by the presented data. The minor typographical and grammatical suggestions listed above should be addressed to further improve the manuscript's quality before publication. The work adds to the knowledge of Meliolales fungi in India.