

Scientific Note

A new host association: *Ischnaspis longirostris* (Signoret, 1882) (Hemiptera: Diaspididae) on *Rhapis excelsa* (Thunb.) A. Henry (Arecaceae) in the Brazilian Cerrado

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Abstract. *Rhapis excelsa* (Thunb.) A. Henry (Arecaceae) is an exotic ornamental plant widely cultivated in Brazil. Although 22 species of scale insects have previously been reported in association with *R. excelsa*, this study aimed to document and describe a new occurrence of a diaspidid species on this host in Brazil. Heavily infested seedlings were found in a plant nursery in Planaltina, Federal District, Brazil, and identified through macroscopic and microscopic analyses. This finding expands the host range of this polyphagous insect and provides the first scientifically confirmed record of *Ischnaspis longirostris* (Signoret, 1882) (Hemiptera: Diaspididae), commonly known as the black thread scale. Given the host's ornamental value and the aesthetic damage caused by infestations, phytosanitary measures should be implemented to prevent economic losses.

Keywords: black thread scale, phytophagous insects, scale insects.

Arecaceae is a diverse family of monocotyledonous plants comprising approximately 181 genera and 2,600 species, predominantly distributed in tropical regions, and widely cultivated worldwide for their ornamental value in squares, avenues, and gardens (Lorenzi et al. 1996; Baker & Dransfield 2016; Carvalho Maria & Biondi 2019). Among the ornamental species used in Brazil, *Rhapis excelsa* (Thunb.) A. Henry stands out as an exotic palm native to China, characterized by multiple clustered stems that can reach up to 4.5 m in height, palmate leaves with 5 to 9 irregular segments, and stems covered with entangled fibrous sheaths (Lorenzi et al. 1996; Broschat 2016). Due to its shade tolerance, ease of cultivation, and striking architectural appearance, this species is commonly found in gardens, pots, and both indoor and outdoor ornamental settings, making it one of the most frequently cultivated palms in Brazilian landscaping (Luz et al. 2006; Meirelles et al. 2007).

Some phytophagous insects have already been reported causing damage to *R. excelsa*, particularly mites and scale insects (Luz et al. 2006; Oliveira et al. 2016). Scale insects (Hemiptera: Coccothraupidae) are phytophagous insects that can cause significant damage to agricultural and forestry crops. The group exhibits considerable diversity, with several families of economic importance, particularly Diaspididae, Coccidae, and Pseudococcidae. They are found in all regions of the world, except Antarctica (Grazia et al. 2024). In Brazil, several new associations between scale insects and previously unreported host plants in Brazilian Cerrado have been described in recent years (Castro et al. 2022; 2025).

To date, 22 scale insects have been described on *R. excelsa* worldwide, across five different families: Diaspididae (10), Pseudococcidae (7), Coccidae (3), Monophlebidae (1), and Rhizoecidae (1) (García-Morales et al. 2016). Diaspididae is the largest family within the suborder Coccothraupidae, comprising 422 genera and 2,732 described species (García-Morales et al. 2016). It includes numerous species of scale insects (known as armored scale insects) of agricultural and forestry importance, causing damage to cultivated and ornamental

plants. They feed on parenchyma (Normak et al. 2019), which can lead to chlorosis, premature leaf drop, reduced growth, and fruit deformation. In addition to causing direct damage, they may also hinder exportation by leaving visible marks on fruits and leaves (Miller et al. 2005).

Ischnaspis longirostris (Signoret, 1882) (Hemiptera: Diaspididae), commonly known as the black thread scale, is a polyphagous scale insect widely distributed globally, having been recorded in 102 countries on 162 host plant genera, including several representatives of Arecaceae (García-Morales et al. 2016). In Brazil, 21 plant species were recorded as hosts, including *Carapa guianensis* Aubl. (Meliaceae), *Cocos nucifera* L. (Arecaceae), *Genipa americana* L. (Rubiaceae), *Persea americana* Mill. (Lauraceae), *Prunus americana* Marshall (Rosaceae), and *Psidium guajava* L. (Myrtaceae) (García-Morales et al. 2016; Peronti et al. 2026).

This study aimed to record and describe the occurrence of *I. longirostris* on *R. excelsa* on pot plants in the Brazilian Cerrado.

Armored scale insects associated with five seedlings of *R. excelsa* were collected in March 2026 in a greenhouse at Embrapa Cerrados (Brazilian Agricultural Research Corporation) situated in Planaltina, Federal District, Brazil (15°36'17.9"S, 47°42'59.7"W). The seedling nursery is an open-type structure, with shade cloth covering the top and no lateral protection, allowing the entry of insects and other animals. Irrigation of the seedlings within the nursery is carried out using sprinklers. The identity of the plants was confirmed with the description by Lorenzi et al. (1996). Planaltina is located in the Cerrado biome that has two well-defined seasons, and the regional climate is classified as AW (i.e., a tropical climate with rain in summer and drought in winter), in which the rainy season runs from October to April and the drought from May to September (Köppen & Geiger 1928).

Leaf samples containing armored scales were stored in a Falcon tube containing 70% alcohol until identification. Slides were mounted for subsequent analysis under an optical microscope, according to the methodology described by Wolff et al. (2014). Specimens were

identified using the key to genus and species description (Claps & Wolff 2003). The slides containing the scale insects are deposited on the "Coleção Entomológica do Museu Ramiro Gomes Costa (MRGC)". The material was collected with authorization from the Brazilian government granted to the first author by the Chico Mendes Institute for Biodiversity Conservation (ICMbio), Ministry of the Environment (MMA) (Collection Permit No. 103869-1).

Images of the infested plants were obtained using an iPhone® 13 Pro Max digital camera. Female scale covers of the scale insects were photographed and measured ($n = 20$) using a Zeiss Discovery V12 stereomicroscope and the Zen 2 (Blue Edition) software. Microscopic analyses were performed using an Axiocam 208 color camera attached to an Axiolab 5 microscope with Zeiss Zen 3.10 software. The figure plates and map were prepared using the Canva software. The map of the scale insect's occurrence in Brazil was produced using the software ArcGIS.

The scale insect found on the seedlings of *R. excelsa* was identified as *I. longirostris*. All five seedlings were completely infested by the insect (Fig. 1A), on both leaf surfaces and along the veins, causing chlorosis (Fig. 1B).

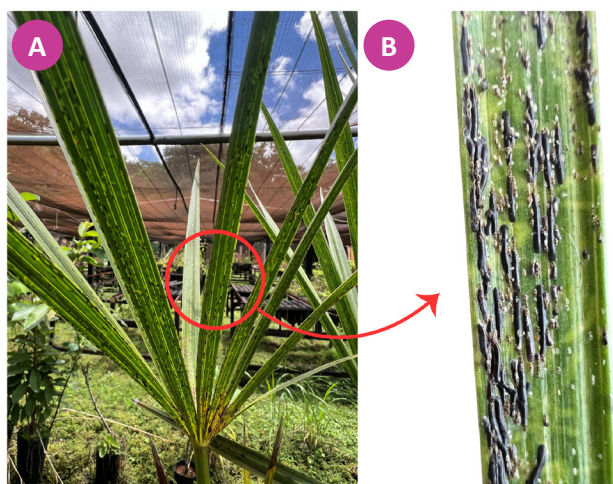


Figure 1. Seedlings of *Rhaps excelsa* (Thunb.) A. Henry (Arecaceae) infested with *Ischnaspis longirostris* (Signoret, 1882) (Hemiptera: Diaspididae) in a plant nursery located in Planaltina, Brazil. A) *Rhaps excelsa* seedlings infested with scale insects; B) Detail of the shields of *I. longirostris* on the surface of the leaves.

Material examined. Twenty adult females were examined on temporary slides for species determination. For deposition in the MRGC collection, the best slide was selected for permanent preparation.

Material deposited. The selected permanent slide has been deposited in the MRGC collection: BRAZIL: Distrito Federal, Planaltina, Embrapa Cerrados, 15°36'17.9"S, 47°42'59.7"W, March 2026, ex *Rhaps excelsa*, col. M. T. de Castro. Two adult females in 02 slides. Slide 2436 deposited in MRGC (2 female).

Diagnosis. Macroscopically, the female shields were brown to strongly darkened, elongated, with a linear to fusiform shape, resembling small dark threads attached to the plant surface (Figs. 2A and 2B). They measured about 3.0 mm in length and 0.40 mm in width and were rigid and firmly attached. No male scale cover was observed; males have not been reported for this species. No honeydew was observed on the plants, a typical characteristic of diaspidids. Although the armored scales of *I. longirostris* are quite characteristic, macroscopic features alone are not sufficient for species identification, requiring examination under a light microscope.

Microscopical characteristics. The adult female body is elongated, with parallel sides and a rounded pygidium, about 1.20 mm in length and 0.40 mm in width, membranous except for the pygidium, which is sclerotized. The pygidium, on the dorsal region, has a large characteristic reticulated area, a large anus in the center, and bilobed ducts; on the ventral region, five groups of perivulvar glands; on the pygidial margin, a pair of well-developed median lobes, widely separated from each other, and the second pair of bilobed lobes. Long glandular spines are present between the median lobes and the second pair of lobes, as

well as on the other segments of the margin (Fig. 3). A comparison with closely related species can be found in Claps & Wolff (2003).



Figure 2. Macroscopic details of *Ischnaspis longirostris* (Signoret, 1882) (Hemiptera: Diaspididae) on *Rhaps excelsa* (Thunb.) A. Henry (Arecaceae). A) Individuals of *I. longirostris* attached to a leaf of *R. excelsa*; B) Female scale elongated, with a linear to fusiform shape. Bars: 1 mm.



Figure 3. Microscopic details of the female pygidium of *Ischnaspis longirostris* (Signoret, 1882) (Hemiptera: Diaspididae). Pygidium, on the dorsal region, has a large characteristic reticulated area, a large anus in the center; on the pygidial margin, a pair of well-developed median lobes, widely separated from each other, and the second pair of bilobed lobes; long glandular spines are present between the median lobes and the second pair of lobes, as well as on the other segments of the margin.

The genus *Ischnaspis* Douglas, 1887 comprises seven recognized species, of which only *I. longirostris* has been recorded in Brazil (García-Morales et al. 2016; Peronti et al. 2026). *Ischnaspis longirostris* covers virtually the entire national territory. Previous records include the North (Pará), Northeast (Bahia and Pernambuco), Southeast (Minas Gerais, Espírito Santo, São Paulo, and Rio de Janeiro), and South (Rio Grande do Sul and Santa Catarina) regions (Peronti et al. 2026) (Fig. 4). Although García-Morales et al. (2016) reported its occurrence in the state of Paraná, this record remains uncertain and lacks formal confirmation. Furthermore, while these authors also mentioned its presence in the Federal District—a report previously considered doubtful due to a lack of substantiating evidence—the present study definitively confirms the occurrence of *I. longirostris* in the Brazilian Central-West region.

Seedlings of *R. excelsa* infested by *I. longirostris* exhibit significant aesthetic damage, reducing their commercial value and market acceptance. This scale insect is frequently listed as an important pest of palms and various species from other botanical families, including economically important plants such as mango, coffee, mahogany, and

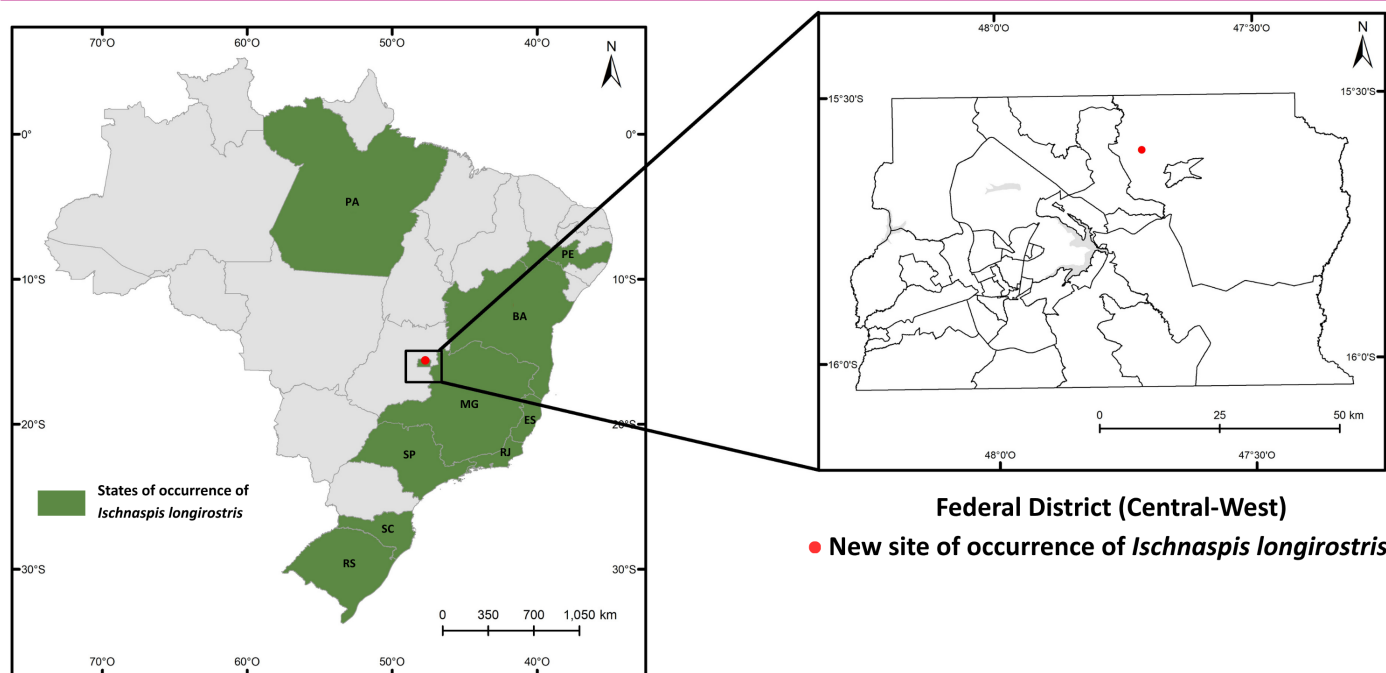


Figure 4. Regions of occurrence of *Ischnaspis longirostris* (Signoret, 1882) (Hemiptera: Diaspididae) in Brazil, highlighting the Federal District (Central-West), where the insect was recorded and confirmed in the present study.

avocado (Miller et al. 2005). Finally, despite the broad host range of this species within the Arecaceae family, to the best of our knowledge, this study provides the first formal record of *I. longirostris* infesting *R. excelsa*.

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Authors' Contribution

MTC: Investigation, Methodology, Project administration, Supervision, Writing - original draft, Writing - review & editing; VRSW: Formal analysis, Investigation; Writing - original draft, Writing - review & editing; MFSA: Investigation; SCLM: Investigation; TSSL: Investigation; RBQ: Writing - original draft.

Conflict of Interest Statement

The authors declare no competing interests.

Ethical Approval

Not applicable.

Data Availability

Not applicable, all data used is disponible on manuscript.

Generative AI Statement

Authors declare that any AI was used during manuscript preparation.

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