



Faunistic survey of mites associated with date palm trees in Bam (Iran)

Azadeh Azari¹, Mahdieh Asadi¹ , Sayed Mosayeb Mahdavi²

1 Department of Plant Protection, Collage of Agriculture, Shahid Bahonar University of Kerman, Kermn, Iran.

2 Department of Plant Protection, Faculty of Agriculture, University of Tabriz, Tabriz, Iran.

✉ Corresponding authors: m.asadi@uk.ac.ir

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Abstract

The Bam region is one of the largest date palm-growing areas in Iran. The mite fauna associated with the fruits and foliage of date palm trees was investigated due to the lack of basic faunistic information in this area. This study, conducted from the beginning of 2022 to the end of 2023, provides a comprehensive survey of the mite fauna associated with date palm orchards in Bam and its surrounding areas. A total of 22 species from 19 genera belonging to 13 families were collected from leaves and fruits. These included members of Tetranychidae, Tenuipalpidae, Anystidae, Bdellidae, Cheyletidae, Caligonellidae, Camerobiidae, Stigmaeidae, and Phytoseiidae. Overall, 10 phytophagous and five predatory mite species were recorded on date palms. Tetranychidae showed the highest species richness (five species), followed by Tenuipalpidae (four species). *Oligonychus afasiaticus* and *Tenuipalpus eriophyoides* were the most widely distributed species on fruits and leaves, respectively. Orchards with a history of pesticide application appeared to have lower mite diversity than other sampled sites. These findings provide baseline information on the mite fauna of date palm orchards in the Bam region and may contribute to future ecological studies and pest management programs.

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Introduction

The date palm (*Phoenix dactylifera* L.) is a vital component of agricultural and economic sustainability in many regions, serving as a key resource for both local consumption and global trade (Al-Jboory, 1999; Johnson, 2010). However, its productivity is threatened by various pests, among which certain mite species pose a significant challenge (Majidi & Akrami, 2013). Their ecological roles vary from phytophagy to predation and parasitism. In particular, the suborder Prostigmata harbors economically important pests like spider mites (Tetranychidae) and false spider mites (Tenuipalpidae), which threaten date palm production by reducing yield and quality through their feeding on leaves and fruits. (Elhalawany et al., 2017, 2020). In addition to herbivorous mites, predatory mites are also present on these trees, which are effective in reducing damage and acaricide consumption by feeding on harmful plant mites and their eggs. (Abuyila et al., 2001; Al-Deeb,

2012) Given the economic importance of herbivorous mites and the fact that fruit orchards in Bam are often sprayed with pesticides, it is necessary to conduct faunal surveys of herbivorous and predatory mites in the orchards and identify the species active on this crop. Furthermore, in Kerman Province, other herbivorous mite species, including *Phyllozettranychus hadii* (Mahdavi et al., 2019), *Oligonychus (Reckiella) washingtoniae* (Mushtaq et al., 2022), *Phyllozettranychus aegyptium* (Sayed, 1938), and *Eutetranychus palmatus* Attiah, 1967, were collected from the palm *Washingtonia filifera* (Rafarin) H. Wendl. ex de Bary (Arecaceae) during earlier surveys (Mahdavi et al., 2025). The objective of this study was to document the diversity, species composition, and distribution of phytophagous and predatory mites associated with date palm orchards in the Bam region of southeastern Iran.

Material and Methods

Mite-infested fruits and leaves were collected, placed into plastic bags and transferred to the laboratory. Table 1 shows the sampling sites of the mites. At each location, ten date palm trees were sampled. Five leaflets and fifteen fruits were collected from different parts of the canopy tree. In addition to date palm leaves and fruits, samples were occasionally collected from vegetation surrounding the orchards, including *Tamarix* and *Haloxylon* species, to document mite species associated with the agroecosystem. The dipping-

washing filtering method was used to remove the mites (Boller, 1984) and then were filtered through a sieve (400 Mesh), and the mites retained on the sieve were washed with 70% ethanol into a Petri dish, then collected individually under a stereomicroscope and mounted in Hoyer's medium. Mites were identified with an Olympus® BX51 phase-contrast compound microscope. Depositories are cited using the following abbreviation.

SBUC: Collection of the Acarology Laboratory, Shahid Bahonar University of Kerman, Kerman, Iran.

Table 1. Sampling locations and GPS coordinates.

Location	GPS
1. Bam	29°05' N, 58°22' E 29°06' N, 58°18' E 29°05' N, 58°21' E 29°05' N, 58°19' E 29°06' N, 58°22' E 29°07' N, 58°21' E
2. Baravat	29°04' N, 58°25' E
3. Taraz	29°46' N, 58°31' E
3. Taraz	29°46' N, 58°31' E
4. Zeydabad	29°08' N, 58°23' E
5. Tahroud	28°41' N, 59°03' E
6. Badrabad	28°34' N, 58°22' E
7. Sharikabad	28°39' N, 58°59' E
8. Poshtroud	29°07' N, 58°21' E
9. Dehbakri	29°02' N, 57°55' E
10. Darijan	29°01' N, 58°00' E
11. Kork	29°15' N, 58°48' E

Results

A total of 22 species from 19 genera belonging to 13 families were collected from leaves and fruits. These included members of Tetranychidae, Tenuipalpidae, Anystidae, Bdellidae, Cheyletidae, Caligonellidae,

Camerobiidae, Stigmaeidae, and Phytoseiidae. Overall 10 phytophagous and five predatory mite species were collected on date palms. Tetranychidae showed the highest species count (6), followed by Tenuipalpidae (4): *Tenuipalpus eriophyoides* and *Oligonychus afrasiaticus* had the widest distribution (Table 2).

Table 2. The identified species of mites collected

Order	Family	Species
1. Mesostigmata	1. Phytoseiidae	1. <i>Neoseiulus barkeri</i> Hughes 2. <i>Typhlodermus bakeri</i> Garman
	2. Laelapidae	3. <i>Gaeolaelaps noli</i> Karg 4. <i>Gaeolaelaps aculeifer</i> Canestrini
	3. Rhodacaridae	5. <i>Multidentrodacarus denticulatus</i> Berlese
2. Sarcoptiformes	4. Acaridae	6. <i>Rhizoglyphus echinopus</i> Fumouze & Robin
3. Trombidiformes	5. Pygmephoridae	7. <i>Pseudopygmephorus tarsalis</i> Hirst
	6. Neopygmephoridae	8. <i>Kerdabania quadrata</i> Willmann
	7. Tetranychidae	9. <i>Oligonychus afrasiaticus</i> McGregor 10. <i>Eutetranychus orientalis</i> Klein 11. <i>Eutetranychus palmatus</i> Attiah 12. <i>Tetranychus urticae</i> Koch 13. <i>Bryobia praetiosa</i> Koch

Table 1 (continued)

Order	Family	Species
3. Trombidiformes	8. Tenuipalpidae	1. <i>Raoiella indica</i> Hirst
		2. <i>Tenuipalpus eriophyoides</i> Baker
		3. <i>Tenuipalpus punicae</i> Pritchard & Baker
		4. <i>Cenopalpus pennatisetis</i> Wainstein
	9. Tuckerellidae	5. <i>Tuckerella parsi</i> Khadem & Asadi
	10. Anystidae	6. <i>Anystis baccharum</i> Linneaus
	11. Bdellidae	7. <i>Spinibdella cornini</i> Baker & Balock
	12. Cheyletidae	8. <i>Cheletogenes ornatus</i> Canestrini & Fanzago
	13. Caligonellidae	9. <i>Molothrognathus mehrnejadi</i> Liang & Zhang

Discussion

Given the presence of predatory mites along with herbivorous mites in many of the sampled habitats, it was found that predatory mites frequently co-occurred with phytophagous mites across the sampled habitats. In many habitats with high populations of herbivorous mites, predatory mites that act as natural enemies were also present. Among the collected species, *Tenuipalpus eriophyoides* and *Oligonychus afrasiaticus* were the most frequently encountered species and showed the widest distribution, being recorded from all sampling locations. Among predatory mites, members of the family Phytoseiidae were the most widely distributed and were collected from several sampling sites. *Molothrognathus mehrnejadi* was also frequently recorded among the predatory mite species. Furthermore, the population of *Tuckerella parsi* (Khadem & Asadi, 2017) collected on *Tamarix* and *Augeriflechtmanhia haloxyloni* (Mahdavi et al., 2022), *Aplonobia (Aplonobia) tabukensis* (Kamran & Alatawi, 2016), *Aplonobia (Aplonobia) aria* (Madhavi et al., 2024) and *Aegyptobia carmania* (Mahdavi & Asadi, 2023) were collected on *Haloxylon ammodendron* species of the fringes of the palm groves. Areas with a history of chemical pest control appeared to have lower mite diversity and relatively higher occurrences of certain mite species compared with other sampled orchards. However, further quantitative studies are required to evaluate these patterns statistically. The findings of this faunistic survey highlight the considerable diversity of mite species associated with date palm orchards in the Bam region and provide valuable baseline information for future ecological and pest management studies. We didn't find *Oligonychus pratensis* (Banks) that is reported by some researchers in other Date-growing provinces (Majidi & Akrami, 2013). The results of this study showed that predatory mites were commonly found in association with date palm spider mite colonies.

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Ethical Approval and Consent

This article does not contain any studies with human participants or animals performed by any of the authors.

CRediT author statement

A. Azari: Provided laboratory support, Writing – original draft. **M. Asadi:** Designed the project, Provided laboratory support, Data analysis. **S. M. Mahdavi:** Designed the project, Provided laboratory support, Data analysis, writing – original draft.

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Data Availability

All data generated or analyzed during this study are included in the published article.

Conflict of interest

The authors declare that they have no conflict of interest.

References

- Abuyila, O. A., Kerra, H. M., & Albahi, A. (2001). Biocontrol of date palm dust mite, *Oligonychus afrasiaticus* (Acarina: Tetranychidae) using predatory mite, *Eutogenes punctata* (Acarina:

- Cheyletidae: Prostigmata). *Al-Mokhtar Journal of Science*, 8, 1–8.
- Al-Jboory, I. J. (1999). Old world date mite on date palm. General Authority for Agricultural Extension, Ministry of Agriculture Iraq, Leaflet no. 9 [in Arabic].
- Al-Deeb, M. A. (2012). Date palm insect and mite pests and their management. In A. Manickavasagan, M. Mohamed Essa, & E. Sukumar (eds.), *Date: Production, processing, food, and medicinal values* (pp. 113–128). Boca Raton: CRC Press, Taylor and Francis Group.
- Boller, E. (1984). Einfache Ausschwemmethode zur schnellen Erfassung von Raubmilben, Trips und anderen Kleinarthropoden. *Weinbau-Schweiz Zeitschrift für Obst-und Weinbau*, 120, 249–255.
- Elhalawany, A., Ahmad, N., & Amer, A. (2020). Biological aspects of date palm dust mite, *Oligonychus afrasiaticus* (McGregor) (Acari: Tetranychidae) on fronds of three date palm cultivars. *Egyptian Academic Journal of Biological Sciences*, 13(1), 89–98. doi:10.21608/eajbsa.2020.74534.
- El-halawany, A. S., Sanad, A. S., & Rakha, M. A. (2017). Field evaluation of date palm dust mite, *Oligonychus afrasiaticus* (McGregor) control on date palm trees in New Valley Governorate of Egypt. *Egyptian Academic Journal of Biological Science*, 9, 129–134.
- Johnson, D. V. (2010). Worldwide dispersal of the date palm from its homeland. *Acta Horticulturae*, 882, 369–375. <https://doi.org/10.17660/ActaHortic.2010.882.42>.
- Kamran, M., Mirza, J. H., & Alatawi, F. J. (2016). The genus *Paraplombia* Wainstein and *Neopetrobia* Wainstein (Acari, Trombidiformes, Tetranychidae) from Saudi Arabia: new species, new records and key to the world species of *Paraplombia*. *ZooKeys*, 598, 27–55. <https://doi.org/10.3897/zookeys.598.9060>
- Khadem safdarkhani, H., & Asadi, M. (2017). A new species of the genus *Tuckerella* (Acari: Trombidiformes: Tuckerellidae) from Iran. *Acarologia*, 58(1), 15–30. <https://doi.org/10.24349/acarologia/20184224>.
- Mahdavi, S. M., & Asadi M. (2023). New records of Tetranychidae and Tenuipalpidae (Acari: Trombidiformes) from Iran with a description of a new species of the genus *Aegyptobia* Sayed. *Systematic & Applied Acarology*, 28(2), 173–184. <https://doi.org/10.11158/saa.28.2.2>
- Mahdavi, S. M., Asadi, M., Latifi, M., Auger, P. (2022). A new species of *Augeriflechtmannia* (Prostigmata: Tetranychidae) from *Haloxylon ammodendron* (Amaranthaceae) in Iran and a key to the world species. *Acarologia*, 62(4), 898–908. <https://doi.org/10.24349/4ry0-lfqd>
- Mahdavi, S. M., Asadi, M., & Modarres, S. A. (2025). A catalog of superfamily Tetranychoidae (Acari: Trombidiformes) from Iran. *Acarologia*, 65(2), 602–646. <https://doi.org/10.24349/3wta-5ato>.
- Mahdavi, S. M., Asadi, M., & Seeman, O. D. (2024). A re-evaluation of the genera *Aplonobia* Womersley and *Paraplombia* Wainstein (Acari: Tetranychidae) with a description of a new species. *Acarologia*, 64(1), 63–75. <https://doi.org/10.24349/rdn0-84fx>
- Mahdavi, S. M., Latifi, M., & Asadi, M. (2019). A new species of *Phyllozetanys* (Acari: Tenuipalpidae) from Iran. *Zootaxa*, 4565(4), 566–578. <https://doi.org/10.11646/zootaxa.4565.4.10>.
- Majidi, M., & Akrami, M. A. (2013). Mites associated with the date palm (*Phoenix dactylifera* L.) in Larestan (Fars Province), southern Iran. *Persian Journal of Acarology*, 2(2), 335–339. <https://doi.org/10.22073/pja.v2i2.10036>.
- Mushtaq, H. M., Kamran, M., & Alatawi, F. (2022). New species, new records, and re-descriptions of two species of the genus *Oligonychus* Berlese (Acari: Prostigmata: Tetranychidae) from Saudi Arabia. *Systematic and Applied Acarology*, 27(12), 2568–2582. <https://doi.org/10.11158/saa.27.12.9>
- Sayed, M. T. (1938). On a new subfamily and two new genera of spider mites (Mites). *Bulletin of the National Museum of Natural History*, 2 (10), 601–610.