

RESEARCH ARTICLE

STIPAGROSTIS XYLOSA COPE (TRIBE ARISTIDEAE, ARISTIDOIDEAE, POACEAE) A NEW DISTRIBUTION AND ADDITION TO THE FLORA OF ADEN, YEMENAbeer Ali Saeed¹ and Abdul Nasser Al-Gifri^{1,*}¹ Dept. of Biology, Faculty of Education - Aden, University of Aden, Yemen*Corresponding author: Abdul Nasser Al-Gifri; E-mail: ngifri@gmail.com

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Abstract

During the field trips between September –October 2022 after the good rainfall, have revealed to good collection and one remarkable very rare species *Stipagrostis xylosa* Cope tribe Aristideae (subfam. Aristidoideae, family Poaceae) is described as a new distribution of species to the flora of Aden. Morphological description and photograph of the species are provided.

Keywords: Flora, New distribution, Aden, Poaceae.

1. Introduction

Flora of Aden is the first ever published in all the Arabian Peninsula. In 1914-16 the comprehensive flora of Aden s.l. were compiled by E. Blatter, while in 1992 Al-Gifri [1] study the flora of Aden s.s. within its borders and compare his result with Blatter's 1914-16 [2]. Nevertheless, from the 90s towards the end of the last century and beginning of this century a significant amount of information pertaining to the flora of Aden was unveiled through field work and subsequent publications [1-4]

Field work since 2020- date, for the Poaceae of Aden Ph.D. project. have revealed to good collection and one remarkable very rare species and addition to flora Aden. It is *stipagrostis xylosa* Cope, this plant species has been collected for the first time from North Bir Ahmed on 21.10.2022, in Aden governorate. The plant was previously collected from Somalia in 1938., collected from Near Mocha, c1000 m in 11.11.1975 by Wood 934 (BM & K.) and from Oman, Dhofar, 6.10.1991, Cope 523 (K). it is published for the first time in 1992 by Cope.

Members of tribe Aristideae (subfam. Aristidoideae, family Poaceae) are widely distributed in the tropical and subtropical parts of the world. The genus *Aristida* (c. 300 species) occurs in the tropics and subtropics of both hemispheres, *Stipagrostis* (c. 50 species) is limited to the drier areas of Africa, the Middle East and Central Asia, and *Sartidia* (4 species) is distributed only in southern Africa and Madagascar [5]. Many species of the genera

Stipagrostis and *Aristida* are adapted to arid and semi-arid environments, such as sand dunes [6], All known species of these genera have a C4 photosynthetic pathway, which enables them to grow in very warm and harsh environments [4,7]. Four species of *Aristida* and three species of *Stipagrostis* were reported in Flora of Aden [2]. Since then, two of the species of *Aristida* and one species of *Stipagrostis* were disappeared for Aden [1].

This study is part of Ph.D project of the Poaceae of Aden. There were no any contribution of local botanists from all over Arabia on the grasses, the only two major botanical works on Arabia done by Late Prof. Shaukat Chaudary on the Grasses of Saudi Arabia and the other by Tom Cope of Kew Herbarium, on the Grasses of Arabian Peninsula and Socotra. [8-12]

2. Materials and methods:

2.1. The study area:

The study area is located in Bir Ahmed in the district of AlBuriqa, Aden Governorate, (Figure 1), at latitude N 12. 53 470 and longitude E 049 57 896, the altitude rage between 20 and 130meters above sea level, sandy area north of Aden near the border of Lahej Governorate. overlook the Gulf of Aden. The temperature ranges between 22 -38 °C, the prevailing direction of the wind is affected by its general direction from northeast to east in winter and spring, and south to southwest in summer and autumn. The maximum wind speed is in winter

(January) (1.92 m/s), while in spring the wind speed is High, as it reached a maximum in March (1.79 m/s), [4]. The annual rain fall ranges between 120 and 150 mm/ and most of the rain falling occurs in the season between June and September, due to the southwest monsoon winds [4]

2.2. Field work:

Between September and October 2022, a number of field works were done. The plant sample was collected on 21.10.2022 in the north of Bir Ahmed area of Aden governorate.

All of the plant's parts were collected, examined, and measured. It was identified by comparing it to the references that were available. A voucher herbarium sample of the plant was created, and kept and deposited in the herbarium of Biology Dept., Faculty of Education, University of Aden,

2.3. Species identification:

we try our best to identified it, but with help of Prof. Mats Thulin of Uppsala University and the expert on the Flora of Somalia, He confirm the name throw email (Personal communication).

3. Result:

3.1 *Stipagrostis xylosa* Cope. 1992 (Poaceae)

Type locality: Hubera, Enigaro District, Somalia.

Date of collection: 10.10.1938

Collector: McKinnon, A.S. (S,110)

Type: in Kew. (holotype: S110. barcode K00036692)

Published in: Kew bulletin 47:660 (1992)

synonyms: *Aristida* aff. *obtusa* Delile

Stipagrostis aff. *obtusa* (Delile) Nees.

3.2. Description

Loosely tufted perennial up to 25 cm high, branched and woody below, the leaves mostly confined to the base but not forming a tight cushion; lower leaf-sheath persistent, tough, not disintegrating into fibers; internodes glabrous. Panicle contracted. Glumes unequal, 3-nerved, narrowly lanceolate-acuminate, glabrous, the lower 12–15 mm long, the upper 9–12 mm long; lemma, including the callus, c. 3.5 mm long, smooth; column glabrous, 4–8 mm long; central awn 3.5–4.5 cm long, plumose in the upper half, the feather nevertheless very obtuse in outline; lateral awns 1–1.5 cm long, glabrous.

New Date of collection: 21.10.2022.

Collector: Abeer Ali Saeed (voucher No. 243)

Locality: North Bir Ahmed (N 12470 '53 ° E 049 '57 ' 896) beside the road to Alwahat- Emran. In small area surrounded by walled lands. Sandy area. Aden, Governorate.



Fig. 1: The map of the Aden Governorate



Fig. 2: *Stipagrostis xylose*, A. Habitat, B. life form, C. The Owns.

4. Discussion:

The information about this species are very limited to Cope publications only. the species mentioned in Alkhuldi checklist 2013 [13] with distribution in Hadramout and western coast without any source reference.

Therefore, a comparison with *Stipagrostis obtusa* (Delile) Nees. Would of great help to the interested botanists. See (table 1) below.

5. Conclusion:

This plant species has been collected on 21.10.2022 for the first time from Bir Ahmed, in Aden governorate. The plant was previously collected from Somalia in 1938 and

published for the first time in 1992 by Cope .and collected from Near Mocha, c1000 m in 11.11.1975 by Wood 934 (BM & K.) and from Oman, Dhofar, 6.10.1991, Cope 523 (K).

Because of its scarcity and limited geographical distribution, it is critical to preserve and propagate this plant. It is also recommended to conduct additional surveys in Bir Ahmed and neighboring areas such as Khabt Alrugaa, Alwihat and along the coast up to Mocha to determine whether or not this plant is present. Its collected only once in 1975 by wood from near Mocha. The present work will support in the evaluation of the plant conservation status in Yemen in particular rare and endangered species.

Table 1: Morphological comparison between the *S. xylose* and *S. obtusa*

Character	<i>S. xylose</i> Cope	<i>S. obtusa</i> (Delile) Nees.
Habit	Loosely tufted perennial up to 25 cm high	Densely tufted perennial up to 30 cm high
Leaves	Glabrous leaves mostly confined th the base but not forming a tight cushion	Glabrous leaves mostly confined th the base forming a tight cushion
Lower leaf sheath	Lower leaf sheaths persistent, tough not disintegrating into fibers.	Lower leaf sheaths disintegrating into persistent fibers.
Glumes	Glumes unequal, 3 nerved, narrowly lanceolate-acuminate, glabrous, the lower 12-15 mm long, the upper 9-12mm long, smooth	Glumes sub equal, 3 nerved, narrowly lanceolate-acuminate, glabrous, 8.3-10 mm long.
Awns	Central awn 3.5-4.5 cm long, plumose in upper half, the feather nevertheless very obtuse in outline; lateral awns 1-1.5 cm long glabrous.	Central awn 2-3 cm long, plumose in upper half, the feather very obtuse in outline; lateral awns 1-1.5 cm long glabrous.

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تسجيل نبات *Stipagrostis xylosa* Cope (من قبيلة Aristideae من تحت فصيلة Aristidoideae فصيلة Poaceae) كانتشار جديد وإضافة لفلورة عدن، اليمن

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المُلخَص

خلال عملية التجميع التي تمت في سبتمبر - أكتوبر 2022 بعد فترة هطول امطار جيدة. في محافظة عدن وخصوصا في منطقة بئر احمد، تم جمع عدد جيد من العينات النباتية، ظهر فيها انتشار لنوع نباتي نادر وجديد وإضافة لفلورة عدن ينتمي الى (قبيلة Aristideae من تحت فصيلة Aristidoideae فصيلة Poaceae) هذا النوع لم يكن مسجلا ضمن الفلورا العنصرية من قبل. تم توصيف مختصر للنبات وتعليق على الجغرافيا النباتية لهذا الصنف، كما تم عمل خريطة لمنطقة دراسته.

الكلمات المفتاحية: فلورا، تسجيل جديد، عدن، الفصيلة النجيلية.

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