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Taxonomical study for some species of *Vicia* L.(fabaceae family)

Khansaa R. Al-Joboury
Iraq Natural History Research Center and Museum, University of Baghdad, Baghdad, Iraq.
Corresponding Author: Khansaa R. Al-Joboury

Abstract: *present paper biosystematics studying four species: Viciamonantha, Viciapalaestina, This Viciatenuifolia, Viciavillosa which belong to fabaceae family. This results based on morphologicl, pollen grain, geographical and useful taxonomic attributes on the specific level, numarical taxonomy.*
Keywords: *Fabaceae, morphology, pollen grain, geography.*

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I. Introduction

The third-largest family and the second very important plant family in agriculture is the legume family (Fabaceae) withinthe flowering plants[1]. *Vicia* L. comprises 166 species in the world, and also distributed mainly from Europe, Asia and North America About 40 species have economic importance [2,3]. According to the Flora of Iraq, there are 22 species which their presence in the mountain pasture useful grazing [4].*Vicia* L. species are morphologically diversified, but it is difficult to depend on alone forthe entire genetic variation finding in the *Vicia* L.[5].Some autherswere worked incytotaxonomic, genetic, cytogenetic, phenetic, genotoxic and biochemical using the genus *Vicia* L.[6,7]. Many taxonomists in their studies use the morphology In contribution for the taxonomy of thefabaceae family and *Vicia* species, The aim of this study was to determine themorphologicl, pollen grain, geographical and numarical taxonomy features for some species of *Vicia* L. and also for verifying relationships among species, and put the basics in the taxonomy of *Vicia* L.

II. Materials and methods

Morphological study: Dry Plant materials of 4 species of the genus *Vicia*which used for this investigation were obtained by the authors from herbarium specimens of Iraq Natural History Research Center and Museum, then Collectors have been studied and identified using corresponding scientific papers, such as Flora of Iraq. Pollen grain: Pollen slides were prepared by the technique of [8], For each morphological features and measurements taken depending on 20 pollens.Determine the pollens shape recorded by following Erdtman (1969) based on P/E ratio. geographical study: The geographical information distribution for *Vicia* species restricted from the herbarium specimens examined. Numerical taxonomy: ItsAn important analysing technique for components of quantitative features, for determination of the Morphological, Pollen grain, geographical characteristics that very important in explination the diversity and distribution the Collectors and finding the relationship among them.[9].

III. Results and Discussion

Morphological features are described as an external appearance, and it gave a comparative description of the studied species, were assessed on stem, leaf, stipule, pedicel,leaflet, corolla, pod and seed. All the species are herbs in Iraq and the species*Viciamonantha* and *Viciapalaestina*are annual herbs, but the species*Viciatenuifolia*is perennial, while*Viciavillosa*is annual or biennial. There is a significant variation in the measurements recordedfor the studied species(table 1.), so these results are compatible with other authres[10,11,12,13] which they studied on the same family.

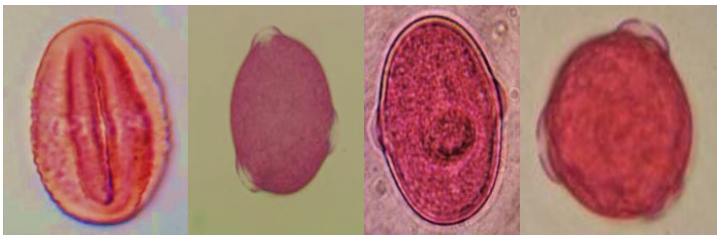
Table 1 shows the morphological features of the four species

N0	species	Habit	Stem cm	Leaflet mm	Stipule mm	Pedicel mm	Corolla			Ovary mm	Pod mm	Seed mm
							Standard mm	Wing mm	Keel mm			
1	Viciamonantha	annual	10-65	×5-30 2-5	12-20	3-4	×10-12 6.5-10	5-6	8-9	3-3.5	20-32	3-4
2	Viciapalaestina	annual	30-80	×10-29 1-6	2-3	1.5-2	×4-11 2-3	4-5	4	2-3.75	2-3	4-5
3	***Viciatenuifolia***	perennial	15-60	×7-40 1-6	5-15	1-2	×10-18 4-8	10-12	8-14	1.5-3	20-30	3.5-4
4	Viciavillosa	annual or biennial	25-40	×7-25 2-6	5-15	1-2	×10-19 3-5	1	8-10	2-4.5	20-35	3-4

The pollen morphology results are summarized in table.2, at the general characteristic we found significant variations in shape, size and exine thickness, which were important in distinguishing among studied species, so *Viciamonantha* recorded the smallest pollen which was 104.8 in P/E ratio, while *Viciapalaestina* was measured as the largest pollen which was 123.2 in P/E ratio. For that our results considered as a significant differences in the quantitative and qualitativepalynological characters value (Fig 1), this agree with[14,15,16].In addition, the exine thickness was ranged from 0.7-1.5 µm, consequentlythis trait considered as a low taxonomic value in our study due to the overlapping ofexine thickness mesuremeants among the species studies. In the geograohical study we have returned to the information in tables in which it was written the species name, location, latitude, longitude, districts, collectors, voucher number, date, determination and redetermination. It can be observed that studied species of *Vicia* distributed in all regions, but it is very widespread in the northern regions of Iraq, and have various altitudes ranging from lowest in the species *Viciamonantha* which was 500m. to highest in the species *Viciavillosa* which was 2300m. So our study proved the existence of a biological diversity of the studied species in the Iraqi regions[17].Depending on the available information, the period of flowering and fruiting was varied depending on the different regions and the environmental conditions that affect the distribution of the genus*Vicia*(Fig. 3).

Table 2 shows the morphological features ofpolen grain of the four specie

No	species	Polar axis ((P) (µm)	Equatorial (axis (E (µm)	P/E X 100	(Length of colpa (µm)		Eneloapperture		Exinethikness (µm)
					length	width	length	width	
1	Viciamonantha	32-40 (36)	30-33 (31.5)	114.3	17-20	**4-6**	8-10	6-7	0.7
2	Viciapalaestina	27-30 (28.5)	25-28 (26.5)	107.5	15-17	3-5	7 -8	3-5	1.25
3	***Viciatenuifolia***	31-34 (32.5)	30-33 (31)	104.8	18-22	4-6	5-.6	3-4	0.8
4	Viciavillosa	25-28 (26.5)	19-24 (21.5)	123.2	9-13	4.5-5	5.5-6.2	3.5-4	1.5



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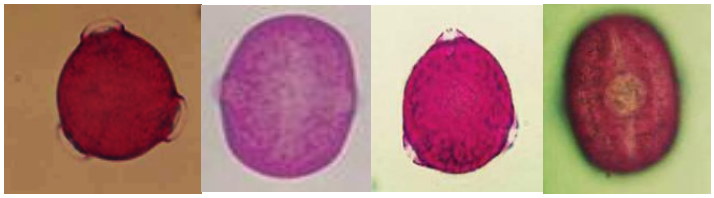

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Fig 1. The pollen grain for the species: *Viciatenuifolia, Viciavillosa, Viciamonantha*and *Viciapalaestina* (1-4 polar view), (1a-4a Equatorial view). (350X)

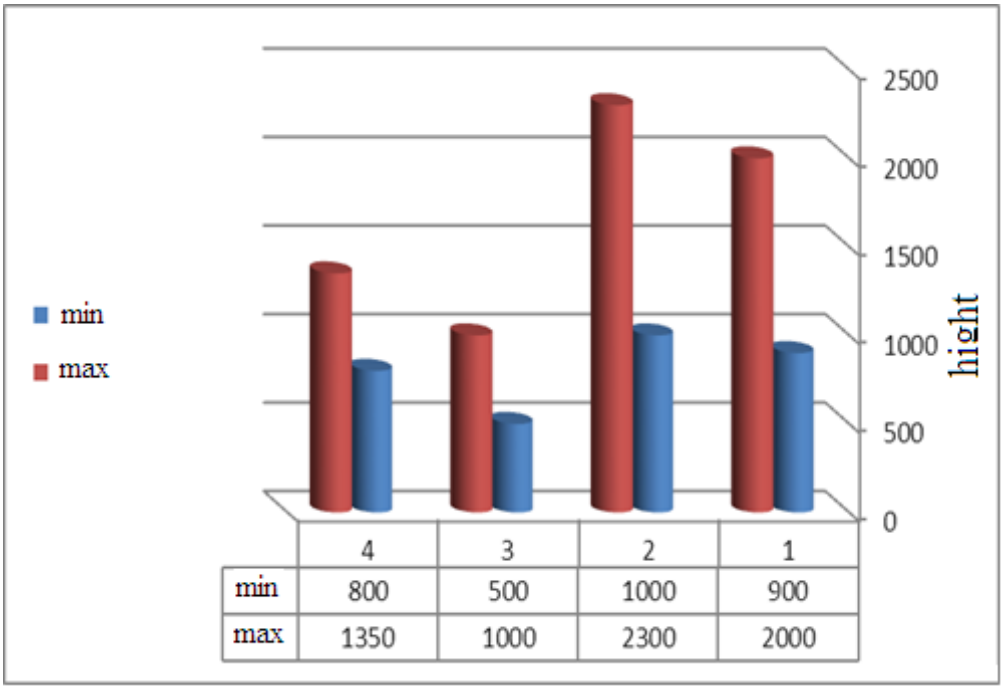

Fig. 2 The altitude of the studied species: *Viciatenuifolia, Viciavillosa, Viciamonantha*and *Viciapalaestina*

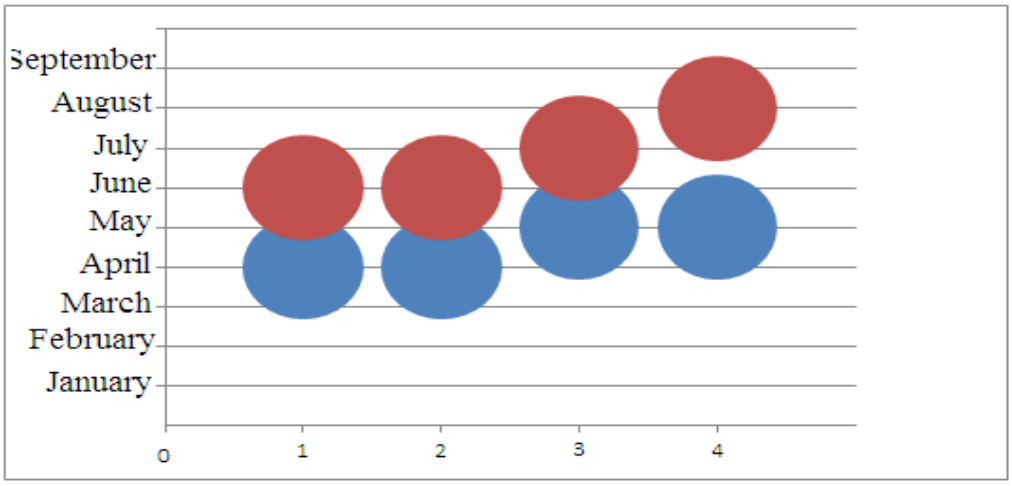

Fig. 3 the period of flowers and fruiting of the studied species: *Viciatenuifolia, Viciavillosa, Viciamonantha*and *Viciapalaestina*

	1	2	3	4
1	0.000			
2	0.123	0.000		
3	0.248	0.244	0.000	
4	0.246	0.245	0.222	0.000

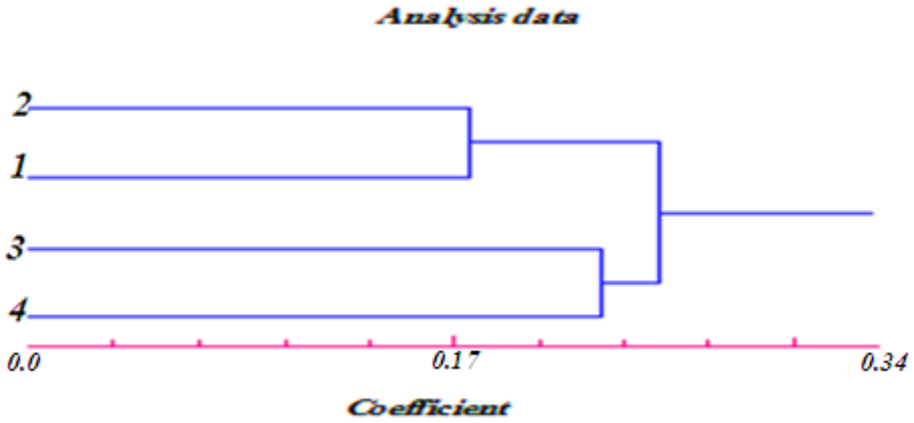

Fig. 4 dendrogram showing the relationships among the species

IV. Conclusion

The information and resuts in based on morphologicl, pollen grain, geographical and numarical taxonomy which obtained from this study can be used in the future forcontribution toexplain what is related to the other species of the genus studied.

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