International Journal of Agricultural and Natural Sciences
E-ISSN: 2651-3617 13(1): 34-38, 2020
Research Article

DETERMINATION OF PHENOLOGICAL CHARACTERISTICS OF SOME LOCAL GRAPEVINE (*Vitis vinifera* subsp. *sativa*) GENOTYPES COLLECTED FROM ERKILET REGION IN KAYSERI

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(Received 26th March 2020; accepted 22th April 2020)

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ABSTRACT. This study was conducted to determine the phenological characteristics of some local genotypes in the vineyard areas from Erkilet region of Kayseri province in 2018. A total of 11 different local grape genotypes known, loved and widely used by the local people for many years in cultivation were chosen. During the vegetation period, bud burst and full bloom observations were made and recorded as day/month. As a result of the study, differences were found among local genotypes in terms of phenological stages. The earliest budburst was recorded on 20 March and the latest budburst was observed on March 29. The full bloom time has ranged from May 20 to May 30 among genotypes.

Keywords: *budburst, bloom, grapevine, Kayseri, local genotypes*

INTRODUCTION

Turkey is the most favorable climate in the World for viticulture and has an old and long history culture [1]. Turkey has a very rich variety of species and types in terms of viticulture, and offers very important gene resources that can be used in breeding studies. Especially, local varieties have a great importance in the development of new varieties [2].

Characterization and evaluation of such invaluable genetic resources is the necessity to avoid genetic erosion. Ampelography is based on the morphological and phenological and pomological characteristics of vine species and varieties. It is important for collection, protection and accuracy of gene resources.

Kayseri; is a city with a long history of vineyards, famous for its vineyards and grapes. In addition to being an important grape production center, it has a very rich genotype variety in terms of viticulture.

Erkilet region in Kayseri provinces has a vineyard area since an ancient time and has a significant diversity. In terms of many varieties and types of richness in viticulture, can be used in breeding programs offer very important gene resources.

This study was conducted to determine phenological characteristics of some local genotypes in the vineyard areas from Erkilet region of Kayseri province.

MATERIALS AND METHODS

Material

This study was carried out in the local producer vineyard areas determined and representing in Erkilet region of Kayseri province in 2018 (Fig. 1 and Fig. 2).

***Fig. 1**. Kayseri province in Turkey*

***Fig. 2.** Erkilet vineyards in Kayseri*

A total of 11 different local grape genotypes which is known and widely used by the local people for many years used in this study (Fig. 3).

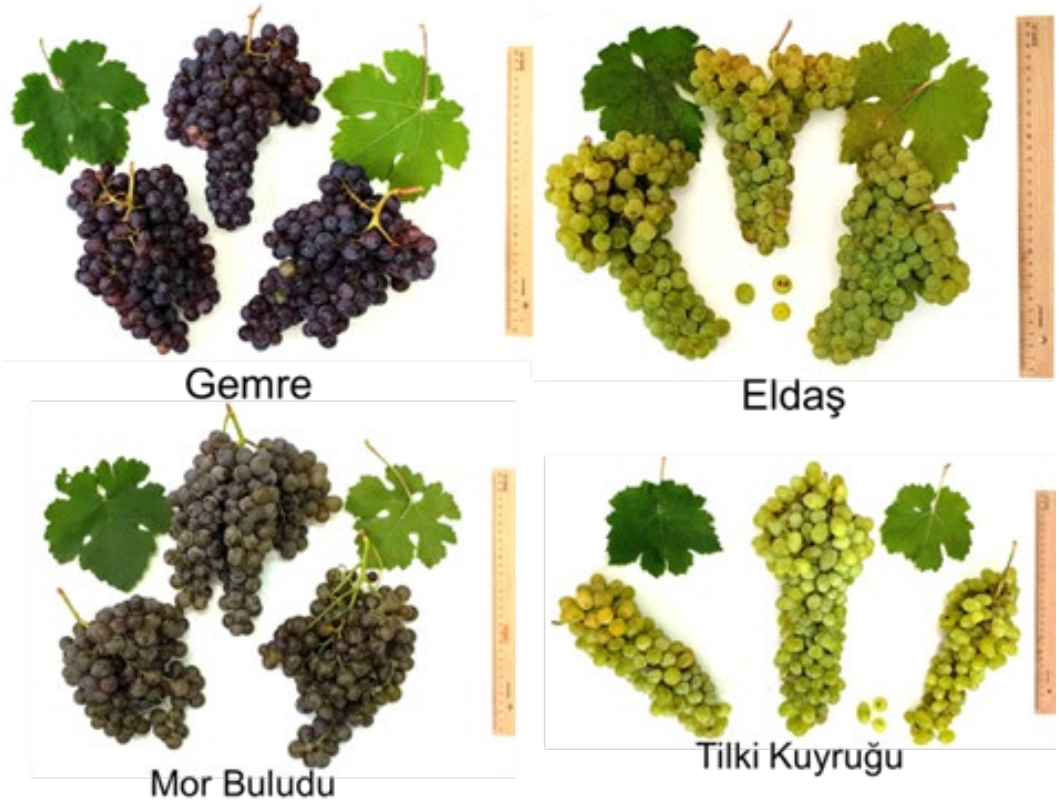

Fig. 3. *Some local genotypes in Erkilet region*

Method

During the vegetation period, bud burst and full bloom observations were recorded as day/month according to the Descriptors for Grapevine (*Vitis* spp.) [3]. (Fig. 4).

Fig. 4. *Budburst and full bloom observations in Erkilet region*

RESULTS AND DISCUSSION

According to results, some differences were found among local genotypes in terms of phenological stages (Table 1). The earliest budburst was recorded on 20 March with Mor buludu named ERK 01 and the latest budburst was observed on 29 March Sungurlu (ERK 10) and Göğcek (ERK 11).

The full bloom time has ranged from 20 May and 30 May among the genotypes. The earliest flowering genotypes were Mor buludu, Gemre, and Misket.

A difference of about 10 days was found between genotypes in terms of the bud burst and full bloom dates depending on the direction and elevation of the vineyard.

Table 1. *Phenological stages of local genotypes*

Genotype no	Local name	Budburst	Full bloom
ERK 01	Mor buludu	20.Mar	20.May
ERK 02	Gemre	23.Mar	20.May
ERK 03	Misket	21.Mar	20.May
ERK 04	Beyaz buludu	22.Mar	30.May
ERK 05	Mor buludu	28.Mar	30.May
ERK 06	Tilki kuyruğu	28.Mar	30.May
ERK 07	Şireder	28.Mar	30.May
ERK 08	Parmak üzüm	28.Mar	30.May
ERK 09	Eldaş	27.Mar	28.May
ERK 10	Sungurlu	29.Mar	26.May
ERK 11	Göğcek	29.Mar	26.May

Phenological development stages differed in the same ecology but in different vegetation years due to changes in climate data [4]. Budburst in wine grape varieties grown in Diyarbakır was between 10-20 April and full bloom between 1-6 June [5]. In another study, bud burst of some grape cultivars were found as; 12-24 April and full bloom dates between 4-11 June [6].

Different results were obtained from previous studies carried out in different regions regarding phenological characteristics. Budburst times of cultivars were 4-20 April [7], 15-27 April [8].

As a result, genetic factors and ecological conditions may be the cause of the different results in the studies performed in different regions.

CONCLUSION

In this study, it has been determined that phenological development periods in vines vary depending on the cultivars, years and ecology. According to the meteorological data, the Spring of 2018 appears as the hottest spring season seen in the records [9]. In our study, it was determined that earliness was provided in the Erkilet region in terms of budburst and full bloom dates.

Acknowledgment. This study was supported by Erciyes University Scientific Research Projects (BAP) Office Directorate (Project No: FDK-2018-8048).

REFERENCES

[1] Çelik, S. (1998): BağViticulture (Ampelology). Cilt:1, Trakya Üni., Tekirdağ Ziraat Fak., Bahçe Bitkileri, Tekirdağ, 425p.

[2] Sabır, A. (2008): Ampelographic and Molecular Characterization of Some Grape Varieties and Rootstocks, PhD Thesis. Çukurova Üni. Ziraat Fak. Bahçe Bitkileri A.B.D. Doktora Tezi, 154p, Adana.

[3] Anonymous, (1997): Descriptors for grapevine (*Vitis* spp.). international plant genetic resources Institute, Rome. 62p

[4] Cangi R, Bekar T. (2017): Determination of Phenological Development Phases and Effective Temperature Aggregation Requests of Narince Grape Cultivars Grown in Different Ecologies in Tokat. Türkiye Teknoloji ve Uygulamalı Bilimler Dergisi/ Turkish Journal of Applied Sciences and Technology, 2528-8652, 1: 86-90.

[5] Söğüt, A.B., Özdemir, G. (2015): Determination of Phenological Properties of Some Wine Grape Varieties in Diyarbakır Ecology. Selçuk Tarım ve Gıda Bilimleri Dergisi-A 27 (Türkiye 8. Bağcılık ve Teknolojileri Sempozyumu Özel Sayısı): 403-412p. ISSN:1309-0550.

[6] Özdemir, G., Tangolar, S., Bilir, H. (2006): Determination of Phenological Periods and Cluster and Grain Properties of Some Table Grape Varieties. Alatarim, 5: 37-42.

[7] Kose, B. (2014): Phenology and Ripening of *Vitis vinifera* L. and *Vitis labrusca* L. Varieties in the Maritime Climate of Samsun in Turkey's Black Sea Region. South African Journal for Enology and Viticulture, 35: 90-102.

[8] Gargin, S., Goktas, A. (2015): Phenology of Some Wine Grape Varieties under Egirdir / Isparta Conditions and Some Climatic Data. Selçuk Üniversitesi Selçuk Tarım ve Gıda Bilimleri Dergisi-A, 27: 254-260.

[9] Anonymous (2019): İklim Değerlendirmesi, T.C. Tarım ve Orman Bakanlığı, meteoroloji Genel Müdürlüğü Araştırma Dairesi Başkanlığı. Ankara. 21p.