



A New Kabuli Chickpea (*Cicer arietinum* L.) Variety “Nuribey 01” for Cultivation in Türkiye

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ABSTRACT

It was developed and submitted for registration as a result of chickpea breeding studies carried out at the Eastern Mediterranean Agricultural Research Institute Directorate, Adana location; and it was registered in 2024 with the name “Nuribey 01” as a result of yield, ascochyta blight tolerance and quality values in registration trials. As a result of chickpea registration yield trials established in different regions of Türkiye, the average yield of Nuribey 01 chickpea variety was 240.3 kg/da⁻¹ and the highest yield value was 364.8 kg/da. According to the results of the experiment, the flowering period of the varieties was 66-156 days, plant height was 39-65 cm and hundred grain weight was 30.7-45.6 g. In terms of technological characteristics, protein ratio was determined in the range of 23,1-27,0%. The gradual seed production of our Nuribey 01 edible chickpea variety, which was registered in 2024, will be planted as of 2025 and will be offered to the service of our farmers.

Keywords: Chickpea, yield, quality

Introduction

Türkiye has a rich plant diversity with different ecological regions. Within this biodiversity, wild relatives of chickpea (*Cicer arietinum* L.) are also found in Türkiye. Chickpea is the second most resistant to drought and low temperature among edible grain legumes after lentils. It is not very selective in terms of soil requirements. It is drought resistant thanks to its small vegetative parts, short development period and taproot system. The importance of chickpea plant in crop rotation increases the importance of its ability to utilize the free nitrogen of the air with Rhizobium bacteria in its roots. At the same time, in addition to these, the contribution of protein richness in eliminating the nutritional deficit makes the chickpea plant indispensable. It is inevitable to supply the food deficit in the world and in our country from different sources. Chickpea is a protein and vitamin-rich edible legume plant that contains 18-31% protein in its grain, as well as important essential amino acids such as leucine,

alanine, lysine, isoleucine, methionine, tryptophan, valine, which are the basic building blocks of the human body, elements such as K, P, Ca, Mg, S, Fe, Mn and vitamins such as A, B and C respectively.

The data for chickpea in Türkiye for 2022 show a cultivation area of 456,480 ha, a production of 580,000 tons, and a grain yield of 1270,6 kg/ha per unit area (FAO, 2024). Chickpea is grown as a winter crop in the Mediterranean and Southeastern Anatolia regions. Chickpea plants to be grown as winter crops should be tolerant/resistant to ascochyta blight disease. The most important biotic factor limiting the winter cultivation and yield of chickpea is *Ascochyta rabiei* (Pass) Labr, which causes ascochyta blight. Anthracnose is a fungal disease. The development and rate of the disease varies according to climatic conditions; it occurs mostly in rainy, hot weather with high relative humidity. Especially rain is an important factor in the spread of the disease. For this reason, it is very important that the varieties are tolerant/resistant to diseases and pests in breeding.

Our aim in breeding studies is to identify chickpea varieties with high yield, high market value, good quality values and tolerant/resistant to Ascochyta blight. Nuribey 01 chickpea variety is an edible grain legume chickpea variety registered for this purpose.

Materials and Methods

Our material sources in our edible grain legume breeding studies; We obtain our materials from material sharing within the scope of the national project, ICARDA material exchange programs, new variations created from our own crossbreeding programs or local varieties.

Our Nuribey 01 chickpea variety is also a variety developed with the national hybridization method. Nuribey 01 Chickpea (*Cicer arietinum* L.) variety was registered by the Eastern Mediterranean Agricultural Research Institute in 2024, suitable for winter cultivation in the Mediterranean, Aegean and Southeastern Regions and summer cultivation in other regions. Nuribey 01 edible chickpea variety is of national material origin and was developed by single plant selection (ENA 144-10) from F₄ populations of material opened from hybridization studies, using hybridization and selection breeding method from breeding methods; It was bred in 2021 and registered in 2024 with the variety name “Nuribey 01” and offered to the service of farmers.

Findings and Discussion

Grain yield is the most important breeding objective in edible grain legumes as in other cultivated plants; in addition, grain size is also a highly demanded trait in chickpea breeding. However, due to the negative correlation between grain yield and grain size and between grain size and ascochyta blight, the optimum grain size should be determined very carefully according to the regional conditions.

The findings obtained with “Nuribey 01” chickpea variety as a result of the two-year multi-location registration trials carried out were determined by the Seed Registration Office. Biological characteristics of Nuribey 01 chickpea variety vary between 66-156 days of flowering and 119-198 days of physiological maturity. The cultivation method is suitable for winter cultivation. Morphological Characteristics; plant height 39-65 cm, first pod height 22-33 cm, plant growth form semi-erect; it is a variety suitable for machine harvesting. Plant Grain Characteristics 100 grain weight 30,7-45,6 g; grain color beige, grain shape angular round. Technological Characteristics of Nuribey 01 chickpea variety: water absorption capacity 0,40-0,49 g/grain; swelling capacity 0,37-0,481 ml/grain; water absorption index 1,08-1,18%; swelling index 2,41-2,48%; sieve values 9,3-39,1% for 9 mm sieve; 23,2-48,0% for 8 mm sieve; protein ratio 23,1-27,0% (SRCCD,2024).

Grain yield value of Nuribey 01 chickpea variety was 240.3 kg/da on average, the highest yield value was 364.8 kg/da and it was determined that it was tolerant to ascochyta blight. Cooking time for cooking showed a cooking value between 37-41 minutes (SRCCD, 2024), (Mart et al., 2020a, 2020b; Mart et al., 2023a, 2023b).

Conclusions

Improving chickpea agriculture in our country through chickpea breeding studies, increasing cultivation areas, narrowing fallow areas by introducing chickpea into fallow areas, supporting sustainable agriculture by introducing it into crop rotation are important for the country’s agriculture and our future.

The introduction of new registered varieties such as Nuribey 01 and chickpea varieties suitable for winter and summer cultivation, high yielding, suitable for machine harvesting, high quality, tolerant/resistant to diseases and pests, with high market value, will carry chickpea agriculture forward.



Figure 1. Plant (a) and grain shape (b) of Nuribey 01 chickpea variety (Original)..

Nuribey 01
CHICKPEA (*Cicer arietinum* L.)

Registration year	2024	
Place and year of breeding	Adana - 2021	
The organization that owns the variety	The Eastern Mediterranean Agricultural Research Institute Directorate Adana/Türkiye	
Breeding organization	Eastern Mediterranean Agricultural Research Institute Directorate	
Breeding method	Hybridisation and selection breeding	
Biological properties	Number of days to flowering	66-156 days
	Number of days to	119-198 days
	Physiological death	
Morphological features	Plant height (cm)	39-65
	First pod height (cm)	22-33
	Plant growth form	Semi erect
	Cultivation method	Winter sowing
Grain properties	Hundred seed weight(g)	30,7-45,6
	Grain color	Beige
	Grain shape	Round corner
Technological features	Water absorption capacity (g/grain)	0,40-0,49
	Swelling capacity (ml/grain)	0,37-0,48
	Water absorption index (%)	1,08-1,18
	Swelling index (%)	2,41-2,48
	Cooking time (min.)	37-41
	Protein rate (%)	23,1-27,0
	Sieve values (%)	9 mm---- 9,3-39,1 8 mm---- 23,2-48,0
Agricultural properties	In registration trials;	
	Average yield (kg/da)	240,3 kg/da
	Highest yield (kg/da)	364,8 kg/da
Places where registration trials are carried out	Diyarbakır, Adana, Manisa, Şanlıurfa, Kahramanmaraş	

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