
Ceratonia siliqua L.: use of marginal lands for sustainable production

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Abstract

The use of marginal lands for sustainable production and agricultural adaptation to climate change represents one of the most challenging and promising alternatives. Local varieties seem to be the most adequate option to obtain a profitable output when low-input techniques are applied and is grown on nutrient poor soils and harsh climatic conditions (Sacristán et al., 2021). Carob tree (*Ceratonia siliqua* L.) is widely distributed in the Mediterranean region and it is considered a rustic species, resistant to drought, calcareous soils and tolerant to salinity (Winer, 1980; Batlle & Tous, 1997; Gubbuk et al., 2009). In this study, 8 -year field trial in the island of Majorca served to investigate the adaptation of different autochthonous varieties cultivated in marginal lands and severe weather, drought periods combined with high temperatures. The experiment was carried out in a marginal land in the southeast of the Majorca with different varieties of *Ceratonia siliqua* L. and in non-irrigated conditions and without agronomic inputs. Eight traditional cultivars (Bajoca, Bauçana, Bugadera, D'en Pau, Des Mestre, Duraió, Lloseta, Mollar and Sa Llebre) and two open-pollinated cultivars (Granja and H-2-12 (E 13P)), were used in this experiment. Four individuals of each cultivar were studied. The parameters evaluated were: yield (kg/ha), seed yield (%), seed production (kg/ha), pod length (cm), pod weight (g) and incidence of *Pseudoidium ceratoniae*. Data were performed with an analysis of variance and Duncan test using IBM SPSS software package (IBM Corp., 2013). The hermaphroditic cultivars came into production in the fourth year, while the female varieties did so later. Across varieties, H-2-12 (E 13P) is the most productive cultivar followed by the Lloseta and Sa Llebre varieties. Granja and H-2-12 (E 13P) were the varieties with the highest seed yield (> 13%), 19.25% and 18.03%, respectively, while that Lloseta, Bajoca and Des Mestre varieties were the varieties that exhibited a lower yield seed (< 9.5%). The incidence of *Pseudoidium ceratoniae* on leaves and fruit was virtually zero (< 5%) due to severe climatic conditions. As the seed production, H-2-12 (E 13P) cultivar continued to be the most productive, however, in this case followed by Bugadera cultivar, fact that is explained by his high seed yield, greater than 15%.

Keywords: Yield, seed yield, local varieties, Mediterranean region

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