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'Vialfas', a new late blooming almond cultivar

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Abstract. The almond breeding programme of the CITA of Aragón aims at late-blooming cultivars with good horticultural behaviour, self-compatible, and with good kernel quality. After previous releases, 'Vialfas' responds to most of these objectives. This new release (selection I-3-27, clone 546) comes from the cross 'Felisia' × 'Bertina'. Its blooming time is very late, three days before 'Mardía' on the average, with similar chilling requirements than 'Mardía' but with slightly lower heat requirements which could explain the difference in blooming time. Flowers are of mean size, white, with peristigmatic style. Bloom density is high and consistent. It is self-compatible (genotype $S_R S_{11}$), of high fruit set and resistance to frosts. Nuts are of mean size (4.7 g), as well as kernels (1.2 g), with a low shelling percentage (25%) and hard shell, and early ripening. Kernel composition is average for protein (18.84% of dry matter), oil (56.72%), and tocopherols (251.8 g/kg oil), and phytosterols (2589 mg/kg oil), but very high for oleic acid (78% of total oil). The tree is slightly upright, with relative tolerance to disease and highly productive.

Keywords. Almond – Cultivar – Breeding – Late blooming – Self-compatibility.

Vialfas', une nouvelle cultivar d'amandier à floraison tardive

Résumé. Le programme d'amélioration génétique de l'amandier du CITA d'Aragón a comme objective l'obtention de cultivars de floraison tardive, bon comportement agronomique, auto-compatibles, et avec amandons de bonne qualité. Après les obtentions antérieures, 'Vialfas' répond à la plus part de ces objectives. Cette nouvelle obtention (sélection I-3-27, clone 546) vient du croisement 'Felisia' × 'Bertina'. L'époque de floraison est très tardive, trois jours avant 'Mardía' comme moyenne, avec similaires besoins en froid que 'Mardía', mais avec besoins en chaleur un peu moindres, ce que pourrait expliquer la différence en date de floraison. Les fleurs son de largeur moyenne, blanches, avec un style peristigmatique. La densité florale est élevée et consistant. Le cultivar est auto-compatible (genotype $S_R S_{11}$), avec une nouaison élevée et résistance aux gelées. Les fruits sont de largeur moyenne (4,7 g), ainsi que l'amandon (1,2 g), avec un bas rendement au cassage (25%), coque dure et maturation précoce. La composition de l'amandon est moyenne pour la protéine (18,84% de matière sèche), huile (56,72%), et tocophéroles (251,8 g/kg huile), et phytostéroles (2589 mg/kg huile), mais très haute pour l'acide oléique (78% de l'huile total). L'arbre est légèrement érigé, avec tolérance relative aux maladies et très productive.

Mots-clés. Amandier – Cultivar – Amélioration – Floraison tardive – Auto-compatibilité.

I – Origin

The almond breeding programme of the CITA of Aragón aims at late-blooming cultivars with good horticultural behaviour, self-compatible, and with good kernel quality. After previous releases, 'Vialfas' responds to most of these objectives. This new release (selection I-3-27, clone 546) comes from the same cross than 'Mardía' (Socías i Company *et al.*, 2008): 'Felisia', a self-compatible and late-blooming cultivar from the same breeding programme, but with a small-sized kernel, by 'Bertina', a local self-incompatible and late-blooming selection, with a large-sized kernel.

II – Description

Blooming time is very late, three days before ‘Mardía’ on the average (Fig. 1), with similar chilling requirements than ‘Mardía’ (354 CU), but with slightly lower heat requirements (10,066 vs 10,663 GDH), which could explain the difference in blooming time. Flowers are of mean size, white, with peristigmatic style. Bloom density is high and consistent. It is self-compatible (genotype $S_{fi}S_{11}$), of high fruit set and resistance to frosts.

Fruit are of mean size (4.7 g), as well as kernel (1.2 g), with a low shelling percentage (25%) and hard shell (Fig. 2). However, the kernel percentage over the total fruit DW is 22.1%, quite high when compared with other cultivars: 23.1% for ‘Guara’, with the highest kernel percentage, whereas for ‘Marcona’, ‘Desmayo Langueta’ and ‘Nonpareil’ it is slightly lower than 10% (Alonso *et al.*, 2012). Ripening is early, slightly later than ‘Guara’.

Kernel composition is average for protein (18.84% of DM), oil (56.72% of DM), tocopherols (251.8 g/kg oil), and phytosterols (2589 mg/kg oil), but very high for oleic acid (78% of total oil).

The tree is slightly upright (Fig. 3), with relative tolerance to diseases and highly productive (Alonso *et al.*, 2015).

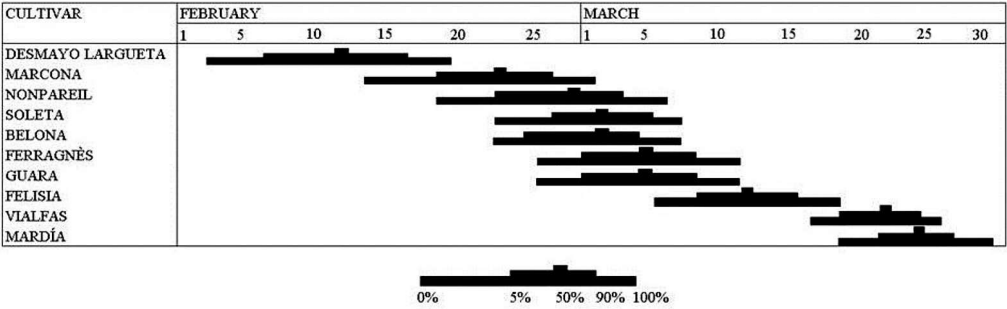


Fig. 1. Blooming time of ‘Vialfas’ as compared to other cultivars (average of 7 years). Percentages refer to the amount of open flowers).



Fig. 2. Nuts and kernels of ‘Vialfas’.



Fig. 3. 'Vialfas' tree in full production.

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