Genetic Resources of The Universal Flavor, Vanilla

Minoo Divakaran and N.T. Fathima Rafieah

Abstract

Commercially cultivated vanilla (*V. planifolia*) is native to Mexico and its cultivation and breeding programmes face major bottlenecks. This study reports presence of important agronomic characters in two important and endangered species of Vanilla, *V. aphylla* and *V. pilifera*, indigenous to India. *V. aphylla* was tolerant to Fusarium wilt and had longer flower life than the cultivated vanilla. *V. pilifera* flowers were fragrant, showed signs of insect pollination and had large fruit size. The species were amenable to interspecific hybridization and successful reciprocal crosses were done. Sequence similarity studies indicated the clustering of leafy and leafless species separately.

Keywords: interspecific hybridization, *V. apylla*, *V. pilifera*, sequence similarity

1. Introduction

The genus Vanilla includes about 110 species and the species have been treated in various monographic works [1, 2] including the life history of *V. planifolia* [3]. *Vanilla planifolia* (Salisb.) Ames (syn. *V. fragrans* Andrews.), is a tropical climbing orchid known for yielding the delicate popular flavor, vanilla [4] and is the second most expensive spice traded in the world market [5] (Spices Board 2000). The major vanilla producing countries are Madagascar, Comoro, Indonesia, Mexico and the Reunion, of which, Madagascar holds the prominent position.

Vanilla was introduced to Europe from Mexico, in about 1500 and its reputation of being an aphrodisiac followed it to countries where it was introduced. The importance of vanilla since early times in Mexico, is evident by the mention of offering vanilla as a medicinal beverage as part of a tribute during reign of Itzcóatl (Aztec Emperor) in 1427 and citing vanilla as a remedy for fatigue in Badianus manuscript in 1552 [6]. *Vanilla planifolia*, which yields the vanilla of commerce, is native to Mexico and parts of Central America and the history of origin of cultivated vanilla suggests that the entire stock outside Mexico may be from a single genetic source. For the last 400 years, humans have been playing important role in the dispersal and spread of vanilla in the New World.

2. Species of Vanilla

Studies of divergence among species of agronomic importance have been receiving greater attention. Genomics-based tools are efficient to characterize and