

INTROGRESI AROMA PADI MENTIK WANGI BERBATUAN MARKA BRADBURY

(Bradbury marker-assisted introgression of Mentik Wangi- mutated *badh2* gene)

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ABSTRAK

Marker-assisted PCR merupakan metoda seleksi aroma paling potensial. Berbagai marka telah dipublikasikan, namun umumnya kurang sesuai untuk varietas Indonesia. Marka Bradbury *et al.* (2005b) merupakan marka dengan sistem multiplex sehingga perbedaan ukuran ampikon sampel aromatik dan nonaromatik lebih jelas dibandingkan marka sistem dupleks yang hanya mengandalkan perbedaan ukuran mutasi gen *badh2* yang relative kecil (8-11 bp). Mentik Wangi dan Gunung Perak merupakan padi aromatik Indonesia yang dapat dibedakan dari varietas nonaromatik oleh marka Bradbury. Penelitian ini mengaplikasikan marka Bradbury pada introgresi aroma Mentik Wangi ke varietas nonaromatik Ciherang secara persilangan terarah (*site-directed crossing*), untuk merekayasa varietas aromatik baru nontransgenik dengan karakter agronomi lain (produktivitas, dsb.) sebaik varietas Ciherang. Donor aroma Mentik Wangi disilangkan dengan Ciherang (*host*), selanjutnya *backcross* dengan Ciherang sampai BC2F1. Pada setiap generasi persilangan/*backcross* dilakukan seleksi PCR berbantuan marka Bradbury. Didapatkan marka Bradbury stabil membedakan sampel Ciherang, Mentik Wangi dan persilangan/*backcross* kedua varietas. Selain itu dapat membedakan status gen (*native/termutasi*) dan alel (*homozygote/ heterozygote*) *badh2*. *Backcross* dan *selfing* lebih lanjut untuk mendapatkan BC5F2 dalam pelaksanaan.

Kata kunci : *Backcross*, Bradbury, Mentik Wangi, Ciherang, *badh2*, *site-directed crossing*.

ABSTRACT

Marker-assisted PCR has been considered as the most potential method for fragrant selection. Various fragrant marker had been previously reported, however most are unsuitable for Indonesia rice varieties. The multiplex fragrant marker of Bradbury *et al.* (2005b) has been able to clearly discriminate between aromatic and non-aromatic amplicons, compared to those of duplex markers based on the small (8-11 bp) difference between native and mutated *badh2* gene. Mentik Wangi and Gunung Perak are Indonesia fragrant rice distinguishable by Bradbury marker. This research applied Bradbury marker in the introgression of Mentik Wangi aroma into Ciherang rice through site-directed crossing, to develop new nontransgenic fragrant variety with good agronomic traits (productivity, etc.) as those of non-fragrant Ciherang. Fragrant donor Mentik Wangi was crossed with Ciherang host, and further *backcrossed* to Ciherang until BC2F1. Bradbury marker-assisted PCR was used to select progeny in every cross and *backcross* generation. Bradbury marker was stable to discriminate between Ciherang, Mentik Wangi, and their cross/*backcross*. The marker was also able to identify the status of *badh2* gene (*native/mutated*), as well as alleles (*homozygote/heterozygote*). Further *backcross* and *selfing* to obtain BC5F2 is in progress.

Keywords : *Backcross*, Bradbury, fragrant, Mentik Wangi, *badh2*, site-directed crossing.