

INTISARI

Hawar Daun Bakteri (HDB) yang disebabkan oleh *Xanthomonas oryzae* pv. *oryzae* (Xoo) merupakan penyakit utama pada tanaman padi. Penelitian ini bertujuan melihat efektivitas strain avirulen dalam menekan patogen virulen penyebab HDB dan kejadian penyakit HDB melalui pendekatan *in vitro* dan *in vivo*. Hasil uji antagonisme antar isolat menunjukkan bahwa strain avirulen XIR-47 mampu menghambat pertumbuhan 9 dari 26 isolat, sedangkan isolat Magetan 1 merupakan isolat paling rentan karena dapat dihambat oleh 10 isolat lainnya. XIR-47 kemudian dimutagenesis melalui dua metode, yaitu subkultur berulang dan paparan sinar UV selama 10 menit. Mutan hasil UV tidak menunjukkan reaksi hipersensitivitas (HR) pada daun tembakau, mengindikasikan hilangnya virulensi. Selain itu, mutan tersebut mampu menghambat isolat Magetan 1, yang sebelumnya tidak dapat dihambat oleh strain asalnya. Uji *in vivo* di rumah kaca menggunakan lima perlakuan pada dua varietas padi, Ciherang dan Mekongga, menunjukkan bahwa varietas Mekongga lebih tahan terhadap infeksi dibandingkan Ciherang. Perlakuan strain mutagenesis terbukti mampu menekan keparahan penyakit, meskipun belum sepenuhnya menurunkan kejadian penyakit secara signifikan.

Kata kunci: antagonisme, mutagenesis, strain avirulen, sub kultur terus menerus, *Xanthomonas oryzae* pv. *oryzae*

ABSTRACT

Bacterial Leaf Blight (BLB) caused by *Xanthomonas oryzae* pv. *oryzae* (Xoo) is a significant disease in rice plants. This study aims to determine the effectiveness of avirulent strains in suppressing virulent pathogens that cause BLB and the incidence of BLB disease through in vitro and in vivo approaches. The results of antagonism tests between isolates showed that the avirulent strain XIR-47 was able to inhibit the growth of 9 out of 26 isolates. In contrast, the Magetan 1 isolate was the most susceptible, as 10 other isolates inhibited it. XIR-47 was then mutagenized using two methods, repeated subculture and UV exposure for 10 minutes. The UV-treated mutant did not show hypersensitivity reactions (HR) in tobacco leaves, indicating loss of virulence. In addition, the mutant was able to inhibit the Magetan 1 isolate, which the original strain had previously been unable to inhibit. In vivo tests in a greenhouse using five treatments on two rice varieties, Ciherang and Mekongga, showed that the Mekongga variety was more resistant to infection than Ciherang. The treatment of mutagenesis strains has been shown to suppress the severity of the disease, although it has not significantly reduced the incidence of the disease.

Keywords: antagonism, avirulent strains, continuous subculture, mutagenesis, *Xanthomonas oryzae* pv. *oryzae*