

LIST OF TABLES

Table		Page
1	Bacterial strains and plasmids used in this experiment	20
2	<i>X. axonopodis</i> pv. <i>glycines</i> (Xag) strains use in this experiment	21
3	Ability of <i>X. axonopodis</i> pv. <i>glycines</i> different strains to induce bacterial pustule disease on different soybean cultivars	45
4	Ability of <i>X. axonopodis</i> pv. <i>glycines</i> to cause the HR on different tested nonhost plants infiltrated with 0.5 OD600 of cell suspension	47
5	Ability of <i>X. axonopodis</i> pv. <i>glycines</i> to cause the HR on tobacco leaves infiltrated with various cell concentrations	48
6	Efficacy of <i>X. axonopodis</i> pv. <i>glycines</i> mutants and wild type strains for induced bacterial pustule symptom on susceptible soybean SJ4 cultivar and hypersensitive response on different nonhosts	51
7	Efficacy of <i>X. axonopodis</i> pv. <i>glycines</i> mutants and wildtype strains for hypersensitive response on different nonhosts, tobacco and tomato	56
8	Hypersensitive response induced by <i>X. axonopodis</i> pv. <i>glycines</i> wildtype and mutant strain on resistance soybean cultivar ST1	57
9	Nucleotide analysis of <i>ppsA</i> and genes of <i>X. axonopodis</i> pv. <i>glycines</i> mutant strains KUMNTP2 compared with other <i>Xanthomonas</i> sp.	64
10	Physiological and biochemical characteristic of nonpathogenic mutant of <i>X. axonopodis</i> pv. <i>glycines</i> KUMNTP2	69
11	Multiplication of <i>X. axonopodis</i> pv. <i>glycines</i> mutant KUMNTP2, wildtype, and complemented strains in the infiltrated soybean leaf tissue at different incubation period	72
12	Efficacy of <i>X. axonopodis</i> pv. <i>glycines</i> mutant, wildtype, and complemented strains for induced bacterial pustule symptom on susceptible soybean SJ4 cultivar by individual inoculation by tissue infiltration and foliar spray with cell concentration of 0.2 OD	75

LIST OF TABLES (Continue)

Table		Page
13	Potential of <i>X. axonopodis</i> pv. <i>glycines</i> mutant, wildtype, and complement strains induced bacterial pustule symptom on susceptible soybean SJ4 cultivar by tissue infiltration with various cell concentrations	77
14	Efficacy of <i>X. axonopodis</i> pv. <i>glycines</i> mutant, wildtype, and complement strains on induced bacterial pustule symptom on susceptible soybean SJ4 cultivar by foliar spray inoculation with and without 10% glucose (v/v)	80
15	Quantification of cellulase to induce necrotic lesions on soybean leaves tested by single infiltration with various cellulase concentrations	84
16	Ability of various cell concentrations of <i>X. axonopodis</i> pv. <i>glycines</i> to cause hypersensitive response on tobacco and tomato nonhost leaves	86
17	Severity of bacterial pustule disease at 7 days after single- and co-inoculation of <i>X. axonopodis</i> pv. <i>glycines</i> (Xag), wildtype, mutant KUMNTP2, and complement strains	89
18	Multiplication of <i>X. axonopodis</i> pv. <i>glycines</i> strains after individual and co-infiltration into mesophyll layer of susceptible soybean cultivars SJ4 at various incubation period	93