

Electronic supplementary material:

Title: Evaluation of seed treatments against *Colletotrichum kahawae* subsp. *cigarro* on *Eucalyptus* spp.

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Appendix A: Effects of hot water seed treatments on seed germination, diseased seedlings and incidence of *Colletotrichum kahawae* subsp. *cigarro* from artificially inoculated *Eucalyptus grandis* seeds

Treatment	Soaking period														
	1 min			15 min			30 min			45 min			60 min		
	Inc ^a	Germ ^b	Dis ^c	Inc	Germ	Dis	Inc	Germ	Dis	Inc	Germ	Dis	Inc	Germ	Dis
40 °C	91.0*ab**v	48.5e***B	49.3b****Y	80.5bw	50.0eB	48.5bY	75.0bx	63.3dA	46.5bY	52.0by	66.5dA	30.8bZ	24.8bz	69.5cA	27.8bZ
45 °C	89.0bw	61.3dB	27.5cX	32.0dx	66.8dB	24.0cX	21.0cy	79.0cA	9.5cZ	17.5cy	81.0cA	16.5cY	8.0cz	77.5bA	15.0cY
50 °C	58.0cw	77.5cC	10.8eXY	17.8ex	74.8cC	11.0dX	7.3dy	92.0aA	8.0cXY	0.0dz	85.5bB	7.3dY	0.0dz	69.8cD	0.0dZ
55 °C	39.8dx	80.8bB	15.0dX	12.0fy	87.3bA	6.8dY	0.0ez	76.5cB	0.0dZ	0.0dz	55.0eC	0.0eZ	0.0dz	40.0dD	0.0dZ
60 °C	0.0fz	88.3aA	17.0dY	0.0gz	25.8hB	0.0eZ	0.0ez	9.3fC	0.0dZ	0.0dz	0.0gD	0.0eZ	0.0dz	0.0fD	0.0dZ
<i>Bacillus</i>	6.5ey	82.5bB	3.5fY	0.0gz	90.0abA	0.0eZ	0.0ez	91.8aA	0.0dZ	0.0dz	91.5aA	0.0eZ	0.0dz	91.0aA	0.0dZ
<i>Trichoderma</i>	8.5ey	80.5bB	7.8efY	0.0gz	88.5bA	0.0eZ	0.0ez	89.0bA	0.0dZ	0.0dz	90.0aA	0.0eZ	0.0dz	90.0aA	0.0dZ
Celest® XL	0.0fz	90.5aA	0.0gZ	0.0gz	92.5aA	0.0eZ	0.0ez	93.3aA	0.0dZ	0.0dz	92.8aA	0.0eZ	0.0dz	93.0aA	0.0dZ
Control	92.3az	31.0fB	62.0aZ	91.0az	36.0fA	59.8aZ	89.8az	27.5eB	61.3aZ	90.8az	28.0fB	62.3aZ	92.3az	27.3eB	62.0aZ

Inc^a: Percentage incidence of *C. kahawae* subsp. *cigarro*, Germ^b: seed germination, Dis^c: diseased seedlings. *Means sharing a common letter in a column do not differ significantly according to the Fisher's LSD test at $p \leq 0.05$. **In each row, means with the same lowercase letters do not significantly differ from each other at $p \leq 0.05$. ***Means within a row not followed by the same uppercase letter are significantly different from each other ($p \leq 0.05$). ****Means within a row followed by same uppercase letter are not significantly different from each other.

Appendix B: Effects of hydrogen peroxide on seed germination, diseased seedlings and incidence of *Colletotrichum kahawae* subsp. *ciggaro* from artificially inoculated *Eucalyptus grandis* seeds

Treatment	Period seeds soaked in H ₂ O ₂														
	1 min			5 min			10 min			30 min			45 min		
	Inc ^a	Germ ^b	Dis ^c	Inc	Germ	Dis	Inc	Germ	Dis	Inc	Germ	Dis	Inc	Germ	Dis
1 % H ₂ O ₂	83.3 ^{*a**x}	45.8d ^{***B}	47.3b ^{***Y}	80.5bx	53.5eA	42.8bZ	68.0by	51.8dA	42.5bZ	66.8byz	50.5fA	48.0bY	63.8bz	50.0fA	49.3bY
5 % H ₂ O ₂	41.8by	60.5cC	39.5cX	39.8cy	85.0bAB	8.0cZ	39.5cy	87.3bA	9.3cYZ	26.3cz	84.8dAB	12.0cY	21.8cz	82.5cB	10.8cY
10 % H ₂ O ₂	29.0cx	83.3aB	9.8dY	27.0dx	87.3abAB	0.0fZ	18.3dy	89.5abA	0.0dZ	7.0dz	83.5dB	0.0dZ	4.5dz	80.3dB	0.0dZ
15 % H ₂ O ₂	23.5dy	78.5bA	0.0gZ	0.0gz	78.8dA	0.0fZ	0.0ez	79.0cA	0.0dZ	0.0ez	72.3eB	0.0dZ	0.0ez	71.3eB	0.0dZ
<i>Bacillus</i>	7.0ey	80.0bB	5.5fY	3.5fy	87.5abA	3.3eY	0.0ez	90.0aA	0.0dZ	0.0ez	90.8bA	0.0dZ	0.0ez	91.5aA	0.0dZ
<i>Trichoderma</i>	9.8ey	78.3bB	7.8eY	6.8ey	82.5cB	5.0dY	0.0ez	87.8bA	0.0dZ	0.0ez	88.5cA	0.0dZ	0.0ez	89.0bA	0.0dZ
Celest [®] XL	0.0fz	84.5aB	0.0gZ	0.0gz	89.3aA	0.0fZ	0.0ez	91.3aA	0.0dZ	0.0ez	93.0aA	0.0dZ	0.0ez	93.5aA	0.0dZ
Control	86.3az	39.3eA	55.3aZ	86.8az	40.8fA	53.8aZ	90.0az	39.5eA	56.3aZ	88.3az	37.8gA	57.0aZ	88.5az	39.0gA	58.5aZ

Inc^a: Percentage incidence of *C. kahawae* subsp. *ciggaro*, Germ^b: seed germination, Dis^c: diseased seedlings. *Means sharing a common letter in a column do not differ significantly according to the Fisher's LSD test at p≤0.05. **In each row, means with the same lowercase letters do not significantly differ from each other at p≤0.05. ***Means within a row not followed by the same uppercase letter are significantly different from each other (p≤0.05). ***** Means within a row followed by same uppercase letter are not significantly different from each other.

Appendix C: Effects of microwave radiation on seed germination, diseased seedlings and incidence of *Colletotrichum kahawae* subsp. *ciggaro*

from artificially inoculated *Eucalyptus grandis* seeds

Treatment	Microwave exposure Time																	
	30 sec			60 sec			90 sec			120 sec			150 sec			180 sec		
	Inc ^a	Germ ^b	Dis ^c	Inc	Germ	Dis	Inc	Germ	Dis	Inc	Germ	Dis	Inc	Germ	Dis	Inc	Germ	Dis
dry 250 W	83.5 ^{a**y}	39.5e ^{***A}	51.8ab ^{****Z}	78.5bz	39.8fA	56.5aY	79.8ayz	39.3fA	54.3aYZ	79.3byz	39.3fA	54.8aY	81.5ayz	40.3fA	53.5aYZ	80.3ayz	40.8fA	52.8aYZ
dry 600 W	80.8bv	37.3efC	50.0bX	74.3cw	40.3fBC	51.8bX	65.8bx	40.0efBC	51.5bX	41.8cy	42.8eAB	42.0bY	29.0bz	44.0eA	40.0bYZ	30.8bz	45.8eA	37.3bZ
dry 1400 W	65.0ex	68.0cB	34.0dX	36.5ey	74.8bcA	25.5cY	32.3dy	68.3cB	23.0dY	0.0gz	8.3gC	0.0fZ	0.0ez	0.0gD	0.0gZ	0.0ez	0.0gD	0.0gZ
wet 250 W	78.0cw	48.3dD	49.5cX	76.0bcw	55.5eB	51.0bX	58.8cx	47.3dD	38.8cY	34.5dy	51.0dC	35.3cY	25.8bz	65.5cA	28.0dZ	21.5cz	68.8cA	29.3cZ
wet 600 W	74.8du	69.8cA	29.0eY	59.8dv	72.0cdA	21.8cZ	31.3dw	47.5dD	40.0cW	18.5ex	51.8dCD	32.3dX	13.0cy	55.8dBC	33.0cX	8.5dz	58.5dB	23.0dZ
wet 1400 W	55.8fx	82.3aA	8.5hY	22.8fy	69.0dB	0.0gZ	0.0gz	41.5eC	0.0gZ	0.0gz	0.0hD	0.0fZ	0.0ez	0.0gD	0.0gZ	0.0ez	0.0gD	0.0gZ
<i>Bacillus</i>	11.0hy	80.5abB	12.5gX	10.3hyz	81.5aB	10.5fXY	9.8fyz	82.0bB	8.8fYZ	8.0fyz	82.5bB	8.3eYZ	7.5dz	85.0aA	7.0fYZ	7.0dz	87.3aA	5.3fZ
<i>Trichoderma</i>	15.3gx	77.1bB	19.5fW	13.5gxy	77.8bB	15.0eX	12.5exy	78.5cB	11.5eXY	10.8fyz	79.0cAB	10.0eYZ	9.5dz	80.3bAB	8.8eYZ	8.3dz	82.0bA	7.5eZ
Celest [®] XL	1.5iz	82.8aC	4.5iY	0.0iz	83.0aC	0.0gZ	0.0gz	85.8aBC	0.0gZ	0.0gz	86.3aAB	0.0fZ	0.0ez	87.8aA	0.0gZ	0.0ez	89.0aA	0.0gZ
Control	82.8abz	35.0fA	52.0aZ	83.3az	38.3fA	52.5bZ	82.0az	38.0fA	53.0aZ	82.8az	38.5fA	52.3aZ	83.0az	38.0fA	53.5aZ	83.8az	38.0fA	53.0aZ

Inc^a: Percentage incidence of *C. kahawae* subsp. *ciggaro*, Germ^b: seed germination, Dis^c: diseased seedlings. *Means sharing a common letter in a column do not differ significantly according to the Fisher's LSD test at $p \leq 0.05$. **In each row, means with the same lowercase letters do not significantly differ from each other at $p \leq 0.05$. ***Means within a row not followed by the same uppercase letter are significantly different from each other ($p \leq 0.05$). ****Means within a row followed by same uppercase letter are not significantly different from each other.