

**Control of Mould Spoilage on Apples Using Yeasts as Biological Control Agents by
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Supplementary Material

Yeast used in the study. Visual representation of the growth of *Botrytis cinerea* (A) and the antagonistic effect of yeast isolate *Meyerozyma guilliermondii* Y88 against *B. cinerea* (B) on yeast malt agar. Visual representation of the growth of *Botrytis cinerea* (A) and the antagonistic effect of yeast isolate *Pichia kluyveri* Y64 against *B. cinerea* (B) on yeast malt agar.

TABLE S1. Yeasts used in this study.

Yeast codes	Species name	Culture collection	Source
Y1	<i>Rhodotorula dairenensis</i>	ARC ^a biobank	Jaboticaba fruit
Y2	<i>Hanseniaspora uvarum</i>	ARC biobank	Jaboticaba fruit
Y3	<i>Hanseniaspora uvarum</i>	ARC biobank	Jaboticaba fruit
Y4	Unknown	ARC biobank	Jaboticaba fruit
Y5	<i>Saccharomyces uvarum</i>	ARC biobank	Jaboticaba fruit
Y6	<i>Aureobasidium melanogenum</i>	ARC biobank	Jaboticaba fruit
Y7	<i>Aureobasidium melanogenum</i>	ARC biobank	Jaboticaba fruit
Y8	<i>Debaryomyces hansenii</i>	ARC biobank	Jaboticaba fruit
Y9	Unknown	ARC biobank	Jaboticaba fruit
Y10	<i>Saccharomyces uvarum</i>	ARC biobank	Jaboticaba fruit
Y11	<i>Debaryomyces hansenii</i>	ARC biobank	Jaboticaba fruit
Y12	<i>Rhodotorula dairenensis</i>	ARC biobank	Jaboticaba fruit
Y13	<i>Hanseniaspora opuntiae</i>	ARC biobank	Jaboticaba fruit
Y14	<i>Saccharomyces uvarum</i>	ARC biobank	Jaboticaba fruit
Y15	<i>Hanseniaspora. uvarum</i>	ARC biobank	Jaboticaba fruit
Y16	<i>Hanseniaspora uvarum</i>	ARC biobank	Jaboticaba fruit
Y17	<i>Hanseniaspora occidentalis</i>	ARC biobank	Jaboticaba fruit
Y18	<i>Debaryomyces hansenii</i>	ARC biobank	Jaboticaba fruit
Y19	<i>Hanseniaspora uvarum</i>	ARC biobank	Jaboticaba fruit
Y20	<i>Hanseniaspora uvarum</i>	ARC biobank	Jaboticaba fruit
Y21	<i>Debaryomyces hansenii</i>	ARC biobank	Jaboticaba fruit
Y22	Unknown	ARC biobank	Jaboticaba fruit
Y23	Unknown	ARC biobank	Jaboticaba fruit
Y24	<i>Meyerozyma guilliermondii</i>	ARC biobank	Jaboticaba fruit
Y25	<i>Hanseniaspora. uvarum</i>	ARC biobank	Jaboticaba fruit

Y26	<i>Hanseniaspora. uvarum</i>	ARC biobank	Jaboticaba fruit
Y27	<i>Hanseniaspora uvarum</i>	ARC biobank	Jaboticaba fruit
Y28	Unknown	ARC biobank	Jaboticaba fruit
Y29	Unknown	ARC biobank	Jaboticaba fruit
Y30	<i>Candida oleophila</i>	ARC biobank	Jaboticaba fruit
Y31	<i>Candida oleophila</i>	ARC biobank	Jaboticaba fruit
Y32	<i>Candida oleophila</i>	ARC biobank	Jaboticaba fruit
Y33	Unknown	ARC biobank	Jaboticaba fruit
Y34	<i>Candida oleophila</i>	ARC biobank	Jaboticaba fruit
Y35	<i>Rhodotorula dairenensis</i>	ARC biobank	Jaboticaba fruit
Y36	<i>Candida oleophila</i>	ARC biobank	Jaboticaba fruit
Y37	<i>Candida oleophila</i>	ARC biobank	Jaboticaba fruit
Y38	<i>Hanseniaspora uvarum</i>	ARC biobank	Jaboticaba fruit
Y39	<i>Meyerozyma guilliermondii</i>	ARC biobank	Jaboticaba fruit
Y40	Unknown	ARC biobank	Mobola plum
Y42	Unknown	ARC biobank	Jaboticaba fruit
Y43	<i>Hanseniaspora guilliermondii</i>	ARC biobank	Marula pulp
Y44	Unknown	ARC biobank	Marula pulp
Y45	<i>Zygosaccharomyces bailii</i>	ARC biobank	Marula pulp
Y46	Unknown	ARC biobank	Marula pulp
Y47	<i>Hanseniaspora opuntiae</i>	ARC biobank	Marula pulp
Y48	Unknown	ARC biobank	Marula pulp
Y49	Unknown	ARC biobank	Marula pulp
Y50	<i>Candida stellimalicola</i>	ARC biobank	Marula pulp
Y51	<i>Pichia kudriavzevii</i>	ARC biobank	Marula pulp
Y52	Unknown	ARC biobank	Marula pulp
Y53	<i>Rhodotorula dairenensis</i>	ARC biobank	Marula pulp
Y54	<i>Hanseniaspora guilliermondii</i>	ARC biobank	Marula pulp
Y55	<i>Pichia kudriavzevii</i>	ARC biobank	Marula pulp
Y56	<i>Pichia fermentans</i>	ARC biobank	Marula pulp
Y57	<i>Hanseniaspora valbyensis</i>	ARC biobank	Palm wine
Y58	<i>Saccharomyces cariocanus</i>	ARC biobank	Palm wine
Y59	Unknown	ARC biobank	Palm wine
Y60	<i>Pichia kluyveri</i>	ARC biobank	Shiraz Fermentation
Y61	<i>Dekkera anomala</i>	ARC biobank	Wine barrel
Y62	<i>Dekkera anomala</i>	ISA ^b 1653	Unknown
Y63	<i>Candida pyralidae</i>	ARC biobank	Shiraz Fermentation
Y64	<i>Pichia kluyveri</i>	ARC biobank	Shiraz Fermentation
Y65	<i>Meyerozyma guilliermondii</i>	ARC biobank	Grape must (Chardonnay)
Y66	<i>Dekkera bruxellensis</i>	ARC biobank	Wine barrel
Y67	<i>Brettanomyces lambicus</i>	CBS ^c	Unknown
Y68	Unknown	ARC biobank	Palm wine
Y69	<i>Zygosaccharomyces bailii</i>	ARC biobank	Chardonnay
Y70	<i>Lanchancea thermotolerans</i>	ARC biobank	Chardonnay must
Y71	<i>Torulaspota delbrueckii</i>	ARC biobank	Grape must,
Y72	<i>Metschnikowia pulcherrima</i>	ARC biobank	Chardonnay

Y73	<i>Lanchancea thermotolerans</i>	CHR Hansen	Unknown
Y74	<i>Torulaspora delbrueckii</i>	ARC biobank	Spontaneous Shiraz fermentation
Y75	<i>Saccharomyces cerevisiae</i>	ARC biobank	Grapes
Y76	<i>Zygosaccharomyces bailii</i>	IGC ^d 4242	Unknown
Y77	<i>B. lambicus</i>	CBS 3093	Unknown
Y78	<i>Meyerozyma guilliermondii</i>	ARC biobank	Apple
Y79	<i>Pichia kluyveri</i>	ARC biobank	Apple
Y80	<i>Zygoascus hellenicus</i>	ARC biobank	Apple
Y81	<i>Meyerozyma guilliermondii</i>	ARC biobank	Apple
Y82	<i>Meyerozyma guilliermondii</i>	ARC biobank	Apple
Y83	<i>Brettanomyces lambicus</i>	ARC biobank	Unknown
Y84	<i>Debaryomyces hansenii</i>	ARC biobank	Mobola plum
Y85	<i>Pichia kluyveri</i>	ARC biobank	Mobola plum
Y87	<i>Meyerozyma guilliermondii</i>	ARC biobank	Apple
Y88	<i>Meyerozyma guilliermondii</i>	ARC biobank	Apple
Y89	<i>Zygoascus helenicus</i>	ARC biobank	Apple
Y90	<i>Zygosaccharomyces bailii</i>	CBS 4689	Grape must
Y91	<i>Zygosaccharomyces rouxii</i>	CBS 731	Grape must
Y92	<i>Zygosaccharomyces rouxii</i>	CBS 681	Soya product
Y93	<i>Zygosaccharomyces microellipsoides</i>	CBS 2734	Unknown
Y94	<i>Zygosaccharomyces cidri</i>	CBS 2951	Cider
Y95	<i>Zygosaccharomyces florentinus</i>	CSIR H576	Unknown
Y96	<i>Zygosaccharomyces fermentati</i>	CBS 4506	Fruit fly
Y97	<i>Zygosaccharomyces bisporus</i>	CSIR ^e Y849	Soil
Y98	<i>Zygosaccharomyces bisporus</i>	CBS 702	Unknown
Y99	<i>Brettanomyces bruxellensis</i>	ARC biobank	Wine barrel
Y100	<i>Brettanomyces bruxellensis</i>	ARC biobank	Wine barrel
Y101	<i>Brettanomyces lambicus</i>	CBS 2910	Unknown
Y102	<i>Candida magnoliae</i>	ARC biobank	Shiraz
Y103	Unknown	ARC biobank	Spontaneous Shiraz fermentations
Y104	<i>Saccharomyces cerevisiae</i>	ARC biobank	Apples
Y105	<i>Meyerozyma guilliermondii</i>	ARC biobank	Apples

^aARC - Agricultural Research Council; ^bISA - Instituto Superior de Agronomia; ^cCBS - Centraal Bureau voor Schimmelcultures; ^dIGC - Gulbenkian Institute of Science; ^eCSIR - Council for Scientific and Industrial Research.

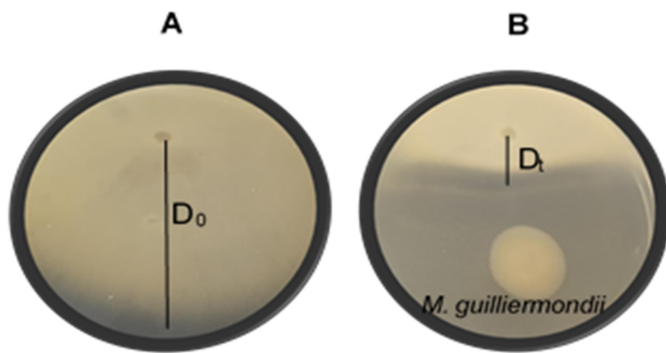


FIGURE S1. Visual representation of the growth of *Botrytis cinerea* (A) and the antagonistic effect of yeast isolate *Meyerozyma guilliermondii* Y88 against *B. cinerea* (B) on yeast malt agar. D_0 representing horizontal growth of the fungal colony on the negative control plates and D_t representing the horizontal growth average of fungal colony on the yeast treated plates. Each plate is a representative example of three replicates.

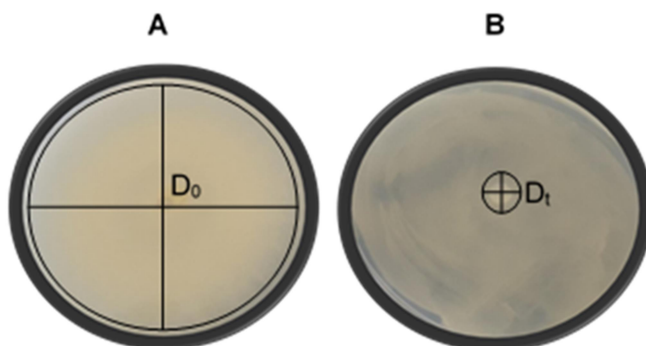


FIGURE S2. Visual representation of the growth of *Botrytis cinerea* (A) and the antagonistic effect of yeast isolate *Pichia kluyveri* Y64 against *B. cinerea* (B) on yeast malt agar. D_0 representing the average diameter of the fungal colony on the negative control plates and D_t representing the diameter of the fungal colony on the yeast treated plates. Each plate is a representative example of three replicates.