



Pycnoporus sanguineus GROWTH IN DIFFERENT SOLID MEDIA

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Introduction. *Pycnoporus* fungus is white-rot basidiomycete, it causes a selective removal of lignin from wood and has a high potential for biotechnological processes (1). *Pycnoporus sanguineus* has different biological activities: antiviral, antibacterial and treatment of several illnesses and skin lesions (2). This fungus produces secondary metabolites such as: cinnabarin, cinnabarinic acid, poliporin, tramesanguine, among others (3). The aim of this study was to determinate the growth of *Pycnoporus sanguineus* in different solid media.

Material and Methods. Two strains of *P. sanguineus* were tested: H1 and H2; first were collected in Villa Guerrero, Estado de Mexico and second in Parácuaro, Michoacán. The fungi were isolated from decay trees of casuarine (*Casuarina equisetifolia* L.) and mango (*Mangifera caesia* W.), respectively. The fungi were isolated and inoculated in solid media: papa dextrose agar (PDA), malt extract agar (MEA), entire wheat meal agar (EWMA), casuarine extract agar (CEA) and mango extract agar (mEA) at different pH (7.0, 8.0 and 9.0). All petri dishes were inoculated and monitored daily. Colony diameter (mm) was measured in both strains.

Results. At the thirteenth day both isolates reached 80 mm in growth (diameter). According to Table 1 Duncan's mean comparison showed that both isolates had affinity to their respective extract agars (CEA in case of H1 and mEA in H2) and they were statistically different respect to the other solid media. MEA was the medium with less growth. At pH 7.0 the strains presented the fastest growth. These behavior could be similar to the original extract pH, then the pH adjust could be omitted.

Table 1. *Pycnoporus sanguineus* strains growth (13 d) in different solid media and pH level.

Factor	Level	N	Colonial growth (mm)	
			H1	H2
Medium	PDA	15	59.66 ± 6.93 ^c	55.00 ± 10.47 ^c
	MEA	15	33.53 ± 3.39 ^d	24.86 ± 5.73 ^d
	EWMA	15	69.66 ± 1.29 ^b	58.00 ± 8.20 ^b
	CEA/mEA	15	79.60 ± 1.12 ^a	79.86 ± 0.51 ^a
pH	7.0	20	62.55 ± 16.8 ^a	60.25 ± 19.68 ^a
	8.0	20	58.20 ± 18.67 ^b	52.10 ± 22.73 ^b
	9.0	20	61.05 ± 18.26 ^a	50.95 ± 20.18 ^b

Different letters in columns present significant differences between treatments (Duncan, $p < 0.05$, $n = 5$).

In other study, the growth was monitored for 20 days and an exponential model was obtained for PDA with similar results as this study (4). Metabolites (red pigment) produced by these fungi could be used as antimicrobial or antifungal compound.

Conclusions. Total growth in solid media for *Pycnoporus sanguineus* strains (H1 and H2) were 13 days in both cases; casuarine and mango extracts, showing affinity for the woods where they were isolated and a neutral pH.

References

- Alexopoulos C. J., Mims C. W. & Blackwell M. (1996). Phylum Basidiomycota order Aphyllophorales, polypores, Chantharellales, tooth fungi, coral fungi and corticioids. In: *Introductory Mycology* Harris D. (ed.), 4th Ed. New York, USA, Wileyand sons Inc. pp 563–597.
- Smânia A, Marques C. J. S., Smânia E. F. A., Zanetti C. R., Carobrez S. G., Tramonte R., & Loguercio-Leite C. (2003). Toxicity and antiviral activity of cinnabarin obtained from *Pycnoporus sanguineus* (Fr.) Murr. *Phytother Res* 17:1069–1072.
- Rosa L. E., Gomes M. K. M., Cristina J. C., Capelari M., Augusto R. C. and Leomar Z. C. 2003. Screening of Brazilian basidiomycetes for antimicrobial activity. *Mem Inst Oswaldo Cruz* 98(7): 967-974.
- Baumer J. D., Mas Diego S. M., Pacheco S. M. V., Morgado A. F. M., & Furigo A. F. Jr. (2008). Comparative study of mycelial growth and production of cinnabarin by different strains of *Pycnoporus sanguineus*. *Revista de Biologia e Farmácia* 2(2): 1-3.