Table 10 Laccase immobilized on different supports

Origin	Support	Immobilization	Substrate	Comment	Reference
Aspergillus sp.	Glass	Adsorption	Syringaldazine	V_0, increase activity	Ruiz *et al*., 2000
	Glass powder				
	Silica gel				
	Nylon-66 membrane				
Botrytis cinerea	Molecular sieves	Covalent-GLUTAL	Chlorogenic acid	60-100% immobilized, 5-28% activity	Zarmorani *et al*., 1993
	Silica gel	Adsorption			
	DEAE-cellulose	Covalent-GLUTAL			
	Alumina-G	Adsorption			
	Sepharose 4B	Covalent-CNBr			
	CNBr-sepharose 4B				
Cerrena maxima	Solid matrices	Adsorption	Biological fluids	Patent	Ghindilis *et al*., 1994
Cerrena unicolor	Glass beads	Covalent-APTES-GLUTAL	Phenols	Properties free and immobilized	Luterek *et al*., 1997
	Silanized porous glass beads		Syringaldazine	pH, t^0 95% activity	Luterek *et al*., 1998
	CPG-activated		Syringaldazine phenols	Km, Vmax, t^0 stability	Rogalski *et al*., 1999
	CPG covered				

Table 10 (Continued)

Origin	Support	Immobilization	Substrate	Comment	Reference
Coriolus hirsutus	Graphite electrode	Adsorption	Phenols	Biosensor	Yaroporov *et al*. (1995)
Coriolus versicolor	Alginate bead, co-polymer/tyrosine	Entrapped-alginate, co-polymerization tyrosine	Color pulp mill	48% efficiency	Davis *et al*. (1990)
	Activated carbon	Covalent-APTES-GLUTAL	2,6 dimethoxyphenol	30% oxidation, reactor 85% immobilization, 89% activity	Davis *et al*. (1992)
Fomes fomentarius	Porous glass (activated)	Covalent-APTES-GLUTAL	Syringaldazine,Ferulic acid, sinapic acid	Km, Vmax, pH stability	Rogalski *et al*. (1991)
Geotrichum candidum	Soil	Adsorption	Phenols	13-98% reduction	Shannon *et al*. (1989)
Lentinula edodes	Chitosan (activated)	Adsorption followed by GLUTAL	Phenols, effluent	Decrease toxicity	D'Annibale *et al*. (1999)
	Eupergit®C	Covalently-activated oxirane	Phenol, ABTS, effluent	45% immobilized, 60% activity	D'Annibale *et al*. (2000)

Table 10 (Continued)

Origin	Support	Immobilization	Substrate	Comment	Reference
Neurospora crassa	Sepharose 4B (activated), concanavalin A-sepharose	Covalently-activated CNBr	Phenols	Stability pH, Km, Vmax	Froehner *et al*. (1975)
Phlebia radiata	Glass beads (Activated)	Covalent-APTES-GLUTAL	Aromatic phenols	Stability, Km, 98% immobilization, 96% activity	Rogalski *et al*. (1995)
Pleurotus ostreatus	Eupergit®C	Covalently-activated oxirane	Phenols, ABTS, DMP	98% stability (10 days), reactor	Hublik *et al*. (2000)
Pleurotus eryngii	Alginate gel sepharose 6B-aldehyde	Adsorption covalent	Phenolic lignin units	Kinetics	Munõz *et al*. (1996)
Polyporus versicolor	Gelatin Polyurethane	Adsorption Entrapped	Hydroquinone, ascorbic acid, ferrocyanide	Kinetics	Bogdanovskaya *et al*. (1997)
	Iminodiacetic acid	Adsorption	Flavenols		Piacquadio *et al*.(1998)
Pycnoporus sanguineus	Magnetic chitosan microspheres	Adsorption & Crosslink with glutaraldehyde	ABTS	70% activity,1 month	Jiang *et al*. (2005)

Table 10 (Continued)

Origin	Support	Immobilization	Substrate	Comment	Reference
Pyricularia oryzae	Silica gel, CNBr-activated sepharose	Covalent-GLUTAL, Covalent-CNBr	Catechins	pH, storage stability, 100% immobilized, 63% stability	Lante *et al*. (1992)
	Molecular sieve	Covalent-GLUTAL	Chlorogenic acid	60-100% immobilized, 5-28% activity	Zamorani *et al*. (1993)
	Silica gel	Adsorption			
	DEAE-cellulose	Covalent-GLUTAL			
	Alumina-G	Adsorption			
	CH-Sepharose 4B	Covalent	Phenols (wine)	51-63% immobilized	Lante *et al*. (1996)
	CNBr-sepharose 4B	Covalent			
	VA-hydroxy	Covalent			
	VA-epoxy	Covalent			
	Silica gel	Adsorption followed by GLUTAL			
	Florisil	Entrapped-radiation			
	Colloidal silica	Polymerization			
	Polyethersulphone membrane	Adsorption	Phenols	40% immobilized, reactor	Lante *et al*. (2000)

Table 10 (Continued)

Origin	Support	Immobilization	Substrate	Comment	Reference
Rigidoporus lignosus	Gold foil	Covalent	ABTS	Biosensor for phenol detection	Vianello *et al*. (2004)
Rhus Vernificera	microporous polypropylene hollow fiber membranes	Entrapment	Hydroxylated aromatic compound	50-100% degradation, 48 h	Moeder *et al*. (2004)
Trametes hirsuta	Alumina	Adsorption	Textile dyes, effluent	Kinetics	Abadulla *et al*. (2000)
Trametes sp.	Porous glass beads	Covalent-APTES-GLUTAL	Phenols, Catechins	Kinetics, calorimetric, FIA	Satoh *et al*. (1998)
Trametes versicolor	Porous glass beads	Covalent-APTES-GLUTAL	Phenols	100% immobilized, 90% activity, pH, t0 stability	Leonowicz *et al*. (1988)
	Kaolinited, Smectiet,	Covalent-APTES-GLUTAL	Phenols	95% immobilized, 74%2,4-DCP removal, stability	Ruggiero *et al*. (1989)
	Sepharose CL-6B	Adsorption	Phenols	60-70% immobilized, Km, stability	Milstein *et al*. (1989)
	Porous glass	Covalent-APTES-GLUTAL	Phenols	Comparion free and immobilized	Rogalski *et al*. (1990)

Table 10 (Continued)

Origin	Support	Immobilization	Substrate	Comment	Reference
Trametes versicolor	Porous glass (activated)	Covalent-APTES-GLUTAL	Syringaldazine, ferulic acid, sinapic acid	Km , Vmax, pH stability	Rogalski *et al*. (1991)
	Pore glass	Covalent-APTES-GLUTAL	Catechols	Reactor	Cliffe *et al*. (1992)
	Sepharose CL-6B	Adsorption	Phenols, lignin	Stability	Milstein *et al* (1993)
	Agarose (activated),	Covalent hydroxysuccinimide, ester derivatized cross-linking agarose gel (Affi-Gel-10 or15)	Phenols, catechols	Reactor performance, pH	Brenna *et al*. (1994)
	Silica gel chemically modified with imidazol group	Adsorption	Textile reactive dye	100% immobilization, 20 min, 80-100% dye decolorization	Zamola *et al*. (2003)
	Chitosan	Conjugation	ABTS	93% conjugation 30% activity loss 70% stability(15 cycles)	Delanoy *et al*. (2005)

Source: Durán *et al*. (2002)