

# Contents

<b>1 Soil Enzyme: The State-of-Art</b> .....	1
Madhunita Bakshi and Ajit Varma	
<b>2 Role of Enzymes in Maintaining Soil Health</b> .....	25
Shonkor Kumar Das and Ajit Varma	
<b>3 Agricultural and Ecological Significance of Soil Enzymes: Soil Carbon Sequestration and Nutrient Cycling</b> .....	43
Wei Shi	
<b>4 Enzymes in Forest Soils</b> .....	61
Petr Baldrian and Martina Štursová	
<b>5 Extracellular Enzymes in Sensing Environmental Nutrients and Ecosystem Changes: Ligand Mediation in Organic Phosphorus Cycling</b> .....	75
Thanh H. Dao	
<b>6 Importance of Extracellular Enzymes for Biogeochemical Processes in Temporary River Sediments during Fluctuating Dry–Wet Conditions</b> .....	103
Annamaria Zoppini and Jürgen Marxsen	
<b>7 Soil Enzymes as Indication of Soil Quality</b> .....	119
Ayten Karaca, Sema Camci Cetin, Oguz Can Turgay, and Ridvan Kizilkaya	
<b>8 Enzyme Activities in the Rhizosphere of Plants</b> .....	149
Dilfuza Egamberdieva, Giancarlo Renella, Stephan Wirth, and Rafiq Islam	

<b>9</b>	<b>Lignocellulose-Degrading Enzymes in Soils</b> .....	167
	Petr Baldrian and Jaroslav Šnajdr	
<b>10</b>	<b>Heterophase Synthesis of Humic Acids in Soils by Immobilized Phenol Oxidases</b> .....	187
	A.G. Zavarzina	
<b>11</b>	<b>Fungal Oxidoreductases and Humification in Forest Soils</b> .....	207
	A.G. Zavarzina, A.A. Lisov, A.A. Zavarzin, and A.A. Leontievsky	
<b>12</b>	<b>Evolutionary-Economic Principles as Regulators of Soil Enzyme Production and Ecosystem Function</b> .....	229
	Steven D. Allison, Michael N. Weintraub, Tracy B. Gartner, and Mark P. Waldrop	
<b>13</b>	<b>Controls on the Temperature Sensitivity of Soil Enzymes: A Key Driver of <i>In Situ</i> Enzyme Activity Rates</b> .....	245
	Matthew Wallenstein, Steven Allison, Jessica Ernakovich, J. Megan Steinweg, and Robert Sinsabaugh	
<b>14</b>	<b>Actinomycetes: Sources for Soil Enzymes</b> .....	259
	V. Suneetha and Zaved Ahmed Khan	
<b>15</b>	<b>Organo-Mineral-Enzyme Interaction and Soil Enzyme Activity</b> .....	271
	Andrew R. Zimmerman and Mi-Youn Ahn	
<b>16</b>	<b>The Influence of Pesticides on Soil Enzymes</b> .....	293
	Liliana Gianfreda and Maria A. Rao	
<b>17</b>	<b>Behavior of Enzymatic Activity in Chilean Volcanic Soil and Their Interactions with Clay Fraction</b> .....	313
	Analf Rosas, Ada López, and Roxana López	
<b>18</b>	<b>Screening, Characterisation and Optimization of Microbial Pectinase</b> .....	329
	V. Suneetha and Zaved Ahmed Khan	
<b>19</b>	<b>Molecular Techniques to Study Polymorphism between Closely Related Microorganisms in Relation to Specific Protein Phosphatase</b> .....	339
	Rajani Malla, Utprekshya Pokharel, Ram Prasad, and Ajit Varma	

<b>20 Production of Ligninolytic Enzymes by White-rot Fungi during Bioremediation of Oil-contaminated Soil</b> .....	363
Natalia N. Pozdnyakova, Ekaterina V. Dubrovskaya, Oleg E. Makarov, Valentina E. Nikitina, and Olga V. Turkovskaya	
<b>Index</b> .....	379



<http://www.springer.com/978-3-642-14224-6>

Soil Enzymology

Shukla, G.; Varma, A. (Eds.)

2011, XVI, 384 p. 75 illus., 6 illus. in color., Hardcover

ISBN: 978-3-642-14224-6