

# Contents

<b>1</b>	<b>Introduction: Plant-Produced Protein Products . . . . .</b>	<b>1</b>
	Elizabeth E. Hood and Paul Christou	

## **Part I Highly Purified Proteins**

<b>2</b>	<b>Commercial Plant-Produced Recombinant Avidin . . . . .</b>	<b>15</b>
	Elizabeth E. Hood and John A. Howard	
<b>3</b>	<b>Molecular Farming in Plants: The Long Road to the Market . . . . .</b>	<b>27</b>
	Rainer Fischer, Johannes F. Buyel, Stefan Schillberg, and Richard M. Twyman	
<b>4</b>	<b>TrypZean™: An Animal-Free Alternative to Bovine Trypsin . . . . .</b>	<b>43</b>
	Aparna Krishnan and Susan L. Woodard	
<b>5</b>	<b>Production of Pharmaceutical Grade Recombinant Native Aprotinin and Non-oxidized Aprotinin Variants Under Greenhouse and Field Conditions . . . . .</b>	<b>65</b>
	Gregory P. Pogue, Fakhrieh Vojdani, Kenneth E. Palmer, Earl White, Hugh Haydon, and Barry Bratcher	

## **Part II Vaccines**

<b>6</b>	<b>Influenza Virus-Like Particles Produced in <i>Nicotiana benthamiana</i> Protect Against a Lethal Viral Challenge in Mice . . . . .</b>	<b>83</b>
	Louis-P. Vézina, Brian J. Ward, Marc-André D'Aoust, Manon Couture, Sonia Trépanier, Andrew Sheldon, and Nathalie Landry	
<b>7</b>	<b>Plant-Produced Recombinant Transmission Blocking Vaccine Candidates to Combat Malaria . . . . .</b>	<b>103</b>
	Stephen J. Streatfield, Natasha Kushnir, and Vidadi Yusibov	

**8 An Oral Vaccine for TGEV Immunization of Pigs . . . . . 135**  
V. Rajan

**9 Edible Rabies Vaccines . . . . . 153**  
Elizabeth Loza-Rubio and Edith Rojas-Anaya

**10 Newcastle Disease Vaccines . . . . . 179**  
Miguel A. Gómez Lim

**11 An Oral Vaccine for Hepatitis B: Challenges, Setbacks,  
and Breakthroughs . . . . . 197**  
Celine A. Hayden

**Part III Industrial Proteins**

**12 Commercial Plant-Produced Recombinant Cellulases for Biomass  
Conversion . . . . . 231**  
Elizabeth E. Hood and Deborah V. Requesens

**13 Brazzein: A High-Intensity Natural Sweetener . . . . . 247**  
Gina Fake and John Howard

**Part IV Future Directions**

**14 The Future of Plant-Produced Pharmaceuticals and Industrial  
Proteins . . . . . 261**  
John Howard and Elizabeth E. Hood

**Index . . . . . 275**



<http://www.springer.com/978-3-662-43835-0>

Commercial Plant-Produced Recombinant Protein  
Products

Case Studies

Howard, J.A.; Hood, E.E. (Eds.)

2014, XII, 281 p. 33 illus., 17 illus. in color., Hardcover

ISBN: 978-3-662-43835-0