

CHAPTER ONE: INTRODUCTION.....	1
STUDY OBJECTIVES.....	1
REASONS FOR DOING THIS STUDY.....	1
INTENDED AUDIENCE.....	2
SCOPE OF THE STUDY.....	2
METHODOLOGY.....	2
INFORMATION SOURCES.....	2
ABOUT THE AUTHOR.....	3
RELATED BCC RESEARCH REPORTS.....	3
BCC ONLINE SERVICES.....	4
DISCLAIMER.....	4
 CHAPTER TWO: EXECUTIVE SUMMARY.....	 5
EXECUTIVE SUMMARY.....	5
<i>SUMMARY TABLE GLOBAL REVENUE OF NON-SUGAR SWEETENERS MARKET, THROUGH 2016 (\$ MILLIONS)</i>	6
<i>SUMMARY FIGURE GLOBAL REVENUE OF NON-SUGAR SWEETENERS MARKET, 2009-2016 (\$ MILLIONS)</i>	6
EXECUTIVE SUMMARY (CONTINUED).....	7
 CHAPTER THREE: OVERVIEW.....	 8
DEFINITIONS.....	8
NEED FOR NON-SUGAR SWEETENERS.....	9
DIABETES MELLITUS.....	9
REACTIVE HYPOGLYCEMIA.....	9
ASSISTANCE IN WEIGHT LOSS.....	10
DENTAL CARE.....	10
LOW-COST ALTERNATIVE.....	10
BENEFITS OF NON-SUGAR SWEETENERS.....	10
PRE-ABSORPTION BENEFIT.....	10
POST ABSORPTION BENEFIT.....	11
LIMITATIONS OF NON-SUGAR SWEETENERS.....	11
IDEAL NON-SUGAR SWEETENER.....	12
NATURAL NUTRITIVE/CALORIC SWEETENERS.....	12
<i>TABLE 1 NATURAL NUTRITIVE SWEETENERS</i>	12
NUTRITIVE SWEETENERS FROM STARCH.....	13
Maltodextrin.....	13
Various glucose syrup / corn syrups (DE 30–70).....	13
Corn Syrup.....	13
Glucose Syrup.....	14
Dextrose (DE 100).....	14
High-fructose Syrup (HFCS).....	15
<i>TABLE 2 DIFFERENTIATION BETWEEN HFCS AND SUGARS</i>	16
Sugar Alcohols.....	16

<i>TABLE 3 TYPES OF SUGAR ALCOHOL AND THEIR SWEETNESS RELATIVE TO SUCROSE</i>	17
NON-NUTRITIVE/NON-CALORIC SWEETENERS	18
ARTIFICIAL SWEETENERS.....	18
<i>TABLE 4 HISTORY OF ARTIFICIAL SWEETENERS</i>	18
Aspartame.....	19
Acesulfame Potassium.....	19
Saccharin	20
Cyclamate	20
Sucralose	20
Neotame	21
Alitame.....	21
NATURAL SWEETENERS	22
Stevia	22
Other Natural Non-nutritive Sweeteners	22
Thaumatococcus.....	22
Glycyrrhizin	22
Tagatose	23
Monatin	23
Luo Han Guo	23
CHAPTER FOUR: REGULATORY ASPECTS	24
REGULATORY ASPECTS	24
U.S. REGULATORY ENVIRONMENT FOR SWEETENERS	25
FDA APPROVAL PROCESS	25
GRAS (GENERALLY RECOGNIZED AS SAFE)	25
<i>TABLE 5 FDA-ESTABLISHED ACCEPTABLE DAILY INTAKE (ADI)</i>	26
GRAS NOTICE INVENTORY	26
<i>TABLE 6 LIST OF GRAS NOTICES, 2007-2011</i>	26
<i>TABLE 6 (CONTINUED)</i>	27
<i>TABLE 6 (CONTINUED)</i>	28
<i>TABLE 6 (CONTINUED)</i>	29
LEGISLATION RELEVANT TO REDUCED-CALORIE FOODS	29
EU REGULATORY ENVIRONMENT FOR SWEETENERS	30
LEGISLATION RELEVANT TO REDUCED-CALORIE FOODS	30
JAPANESE REGULATORY ENVIRONMENT FOR SWEETENERS.....	31
INDIAN REGULATORY ENVIRONMENT FOR SWEETENERS	31
<i>TABLE 7 MAXIMUM LIMIT OF ARTIFICIAL SWEETENER AS GIVEN BY PFA (RULE-47)</i>	31
<i>TABLE 8 REGULATIONS OF NUTRITIVE SWEETENERS</i>	32
<i>TABLE 9 REGULATIONS OF NON – NUTRITIVE SWEETENERS</i>	33
<i>TABLE 9 (CONTINUED)</i>	34
<i>TABLE 10 REGULATIONS OF NATURAL NON – NUTRITIVE SWEETENERS</i>	34
<i>TABLE 10 (CONTINUED)</i>	35

CHAPTER FIVE: INDUSTRY STRUCTURE	36
MANUFACTURERS/ SUPPLIERS FOR NUTRITIVE SWEETENERS	36
HIGH FRUCTOSE CORN SYRUP.....	36
<i>TABLE 11 LEADING MANUFACTURERS/SUPPLIERS OF HIGH-</i>	
<i>FRUCTOSE CORN SYRUP</i>	<i>36</i>
<i>TABLE 11 (CONTINUED).....</i>	<i>37</i>
SUGAR ALCOHOLS	37
<i>TABLE 12 LEADING MANUFACTURERS/ SUPPLIERS OF SUGAR</i>	
<i>ALCOHOLS.....</i>	<i>37</i>
<i>TABLE 12 (CONTINUED).....</i>	<i>38</i>
<i>TABLE 12 (CONTINUED).....</i>	<i>39</i>
<i>TABLE 12 (CONTINUED).....</i>	<i>40</i>
OTHER NUTRITIVE SWEETENERS	40
<i>TABLE 13 LEADING MANUFACTURERS/ SUPPLIERS OF OTHER</i>	
<i>NUTRITIVE SWEETENERS.....</i>	<i>40</i>
<i>TABLE 13 (CONTINUED).....</i>	<i>41</i>
<i>TABLE 13 (CONTINUED).....</i>	<i>42</i>
MANUFACTURERS/ SUPPLIERS FOR NON-NUTRITIVE	
SWEETENERS	42
ARTIFICIAL SWEETENERS.....	42
<i>TABLE 14 LEADING MANUFACTURERS/ SUPPLIERS OF</i>	
<i>ARTIFICIAL SWEETENERS</i>	<i>42</i>
<i>TABLE 14 (CONTINUED).....</i>	<i>43</i>
<i>TABLE 14 (CONTINUED).....</i>	<i>44</i>
NATURAL NON-NUTRITIVE SWEETENERS	45
<i>TABLE 15 LEADING MANUFACTURERS/ SUPPLIERS OF NATURAL</i>	
<i>NON-NUTRITIVE SWEETENERS</i>	<i>45</i>
MARKET SHARES OF INDUSTRY LEADERS	46
CALORIC SWEETENERS.....	46
High Fructose Corn Syrup	46
<i>TABLE 16 GLOBAL MARKET SHARES OF HIGH FRUCTOSE CORN</i>	
<i>SYRUP MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>46</i>
<i>FIGURE 1 GLOBAL MARKET SHARES OF HIGH FRUCTOSE CORN</i>	
<i>SYRUP MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>47</i>
Sugar Alcohol.....	47
<i>TABLE 17 GLOBAL MARKET SHARES OF SUGAR ALCOHOL</i>	
<i>MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>48</i>
<i>FIGURE 2 GLOBAL MARKET SHARES OF SUGAR ALCOHOL</i>	
<i>MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>48</i>
Other Caloric Sweeteners	48
<i>TABLE 18 GLOBAL MARKET SHARES OF OTHER CALORIC</i>	
<i>SWEETENERS MANUFACTURERS/ SUPPLIERS, 2010 (%)</i>	<i>49</i>
<i>FIGURE 3 GLOBAL MARKET SHARES OF OTHER CALORIC</i>	
<i>SWEETENERS MANUFACTURERS/ SUPPLIERS, 2010 (%)</i>	<i>49</i>

NON-CALORIC/NON-NUTRITIVE SWEETENERS.....	50
Artificial Sweeteners	50
Aspartame	50
<i>TABLE 19 GLOBAL MARKET SHARES OF ASPARTAME</i>	
<i>MANUFACTURERS/SUPPLIERS, 2010 (%).....</i>	<i>50</i>
<i>FIGURE 4 GLOBAL MARKET SHARES OF ASPARTAME</i>	
<i>MANUFACTURERS/SUPPLIERS, 2010 (%).....</i>	<i>51</i>
Acesulfame-K	51
<i>TABLE 20 GLOBAL MARKET SHARES OF ACESULFAME-K</i>	
<i>MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>51</i>
<i>FIGURE 5 GLOBAL MARKET SHARES OF ACESULFAME-K</i>	
<i>MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>52</i>
Cyclamate.....	52
<i>TABLE 21 GLOBAL MARKET SHARES OF CYCLAMATE</i>	
<i>MANUFACTURERS/SUPPLIERS, 2010 (%).....</i>	<i>53</i>
<i>FIGURE 6 GLOBAL MARKET SHARES OF CYCLAMATE</i>	
<i>MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>53</i>
Saccharin.....	53
<i>TABLE 22 GLOBAL MARKET SHARES OF SACCHARIN</i>	
<i>MANUFACTURERS/SUPPLIERS, 2010</i>	<i>54</i>
<i>FIGURE 7 GLOBAL MARKET SHARES OF SACCHARIN</i>	
<i>MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>54</i>
Sucralose	54
<i>TABLE 23 GLOBAL MARKET SHARES OF SUCRALOSE</i>	
<i>MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>55</i>
<i>FIGURE 8 GLOBAL MARKET SHARES OF SUCRALOSE</i>	
<i>MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>55</i>
Neotame	55
Natural Sweeteners.....	56
Stevia.....	56
<i>TABLE 24 GLOBAL MARKET SHARES OF STEVIA</i>	
<i>MANUFACTURERS/SUPPLIERS, 2010 (%).....</i>	<i>56</i>
<i>FIGURE 9 GLOBAL MARKET SHARES OF STEVIA</i>	
<i>MANUFACTURERS/ SUPPLIERS, 2010 (%).....</i>	<i>57</i>
Other Natural Sweeteners	57
<i>TABLE 25 GLOBAL MARKET SHARES OF OTHER NATURAL</i>	
<i>SWEETENERS MANUFACTURERS/SUPPLIERS, 2010 (%)</i>	<i>58</i>
<i>FIGURE 10 GLOBAL MARKET SHARES OF OTHER NATURAL</i>	
<i>SWEETENERS MANUFACTURERS/SUPPLIERS, 2010 (%)</i>	<i>59</i>
CHAPTER SIX: NEW DEVELOPMENTS	60
PUSH FOR DEVELOPMENT.....	60
INNOVATION AND RESEARCH	60
STRONGER DEMAND FROM CONSUMER.....	61
LIFTING OF REGULATIONS	61

<i>TABLE 26 LIST OF RECENT MAJOR NEW PRODUCT DEVELOPMENTS</i>	62
<i>TABLE 26 (CONTINUED)</i>	63
CHAPTER SEVEN: MARKET ANALYSIS	64
MARKET ANALYSIS	64
<i>TABLE 27 GLOBAL MARKET FOR NON-SUGAR SWEETENERS, THROUGH 2016 (\$ MILLIONS)</i>	65
<i>FIGURE 11 GLOBAL MARKET FOR NON-SUGAR SWEETENERS, 2009-2016 (\$ MILLIONS)</i>	66
CALORIC SWEETENERS/NUTRITIVE SWEETENERS	66
MARKET OVERVIEW	66
MARKET REVENUE.....	67
<i>TABLE 28 GLOBAL MARKET FOR CALORIC/NUTRITIVE SWEETENERS BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	67
<i>FIGURE 12 GLOBAL MARKET FOR CALORIC/NUTRITIVE SWEETENERS BY REGION, 2009-2016 (\$ MILLIONS)</i>	67
HIGH-FRUCTOSE CORN SYRUP (HFCS).....	68
Market Overview	68
Market Revenue	69
<i>TABLE 29 GLOBAL MARKET FOR HIGH-FRUCTOSE CORN SYRUP BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	69
<i>FIGURE 13 GLOBAL MARKET FOR HIGH FRUCTOSE CORN SYRUP BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	70
SUGAR ALCOHOL	70
Market Overview	71
Market Revenue	71
<i>TABLE 30 GLOBAL MARKET FOR SUGAR ALCOHOL BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	72
<i>FIGURE 14 GLOBAL MARKET FOR SUGAR ALCOHOL BY REGION, 2009-2016 (\$ MILLIONS)</i>	72
OTHER NUTRITIVE SWEETENERS	72
Market Overview	73
Market Revenue	73
<i>TABLE 31 GLOBAL MARKET FOR OTHER CALORIC SWEETENERS BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	74
<i>FIGURE 15 GLOBAL MARKET FOR OTHER CALORIC SWEETENERS BY REGION, 2009-2016 (\$ MILLIONS)</i>	74
NON-CALORIC/NON-NUTRITIVE SWEETENERS	74
MARKET OVERVIEW	75
MARKET REVENUE.....	75
<i>TABLE 32 GLOBAL MARKET FOR NON-NUTRITIVE/NON-CALORIC SWEETENERS BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	76
<i>FIGURE 16 GLOBAL MARKET FOR NON-NUTRITIVE/NON-CALORIC SWEETENERS BY REGION, 2009-2016 (\$ MILLIONS)</i>	76

ARTIFICIAL SWEETENERS.....	76
Aspartame.....	76
Market Overview	77
Market Revenue.....	77
<i>TABLE 33 GLOBAL MARKET FOR ASPARTAME BY REGION,</i>	
<i>THROUGH 2016 (\$ MILLIONS).....</i>	<i>78</i>
<i>FIGURE 17 GLOBAL MARKET FOR ASPARTAME BY REGION, 2009-</i>	
<i>2016 (\$ MILLIONS).....</i>	<i>78</i>
Sucralose	79
Market Overview	79
Market Revenue.....	80
<i>TABLE 34 GLOBAL MARKET FOR SUCRALOSE BY REGION,</i>	
<i>THROUGH 2016 (\$ MILLIONS).....</i>	<i>80</i>
<i>FIGURE 18 GLOBAL MARKET FOR SUCRALOSE BY REGION, 2009-</i>	
<i>2016 (\$ MILLIONS).....</i>	<i>81</i>
Neotame	81
Market Overview	82
Market Revenue.....	82
<i>TABLE 35 GLOBAL MARKET FOR NEOTAME BY REGION,</i>	
<i>THROUGH 2016 (\$ MILLIONS).....</i>	<i>82</i>
<i>FIGURE 19 GLOBAL MARKET FOR NEOTAME BY REGION,</i>	
<i>THROUGH 2016 (\$ MILLIONS).....</i>	<i>83</i>
Saccharin	83
Market Overview	84
Market Revenue.....	84
<i>TABLE 36 GLOBAL MARKET FOR SACCHARIN BY REGION,</i>	
<i>THROUGH 2016 (\$ MILLIONS).....</i>	<i>84</i>
<i>FIGURE 20 GLOBAL MARKET FOR SACCHARIN BY REGION, 2009-</i>	
<i>2016 (\$ MILLIONS).....</i>	<i>85</i>
Cyclamate	85
Market Overview	85
Market Revenue.....	86
<i>TABLE 37 GLOBAL MARKET FOR CYCLAMATE BY REGION,</i>	
<i>THROUGH 2016 (\$ MILLIONS).....</i>	<i>86</i>
<i>FIGURE 21 GLOBAL MARKET FOR CYCLAMATE BY REGION, 2009-</i>	
<i>2016 (\$ MILLIONS).....</i>	<i>87</i>
Acesulfame-K.....	87
Market Overview	88
Market Revenue.....	88
<i>TABLE 38 GLOBAL MARKET FOR ACESULFAME-K BY REGION,</i>	
<i>THROUGH 2016 (\$ MILLIONS).....</i>	<i>89</i>
<i>FIGURE 22 GLOBAL MARKET FOR ACESULFAME-K BY REGION,</i>	
<i>THROUGH 2016 (\$ MILLIONS).....</i>	<i>89</i>
NATURAL SWEETENERS	89

Stevia	89
Market Overview	90
Market Revenue.....	90
<i>TABLE 39 GLOBAL MARKET FOR STEVIA BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	91
<i>FIGURE 23 GLOBAL MARKET FOR STEVIA BY REGION, 2009-2016 (\$ MILLIONS)</i>	91
OTHER NATURAL SWEETENERS	92
Market Overview	92
Market Revenue	93
<i>TABLE 40 GLOBAL MARKET FOR OTHER NATURAL SWEETENERS BY REGION, THROUGH 2016 (\$ MILLIONS)</i>	93
<i>FIGURE 24 GLOBAL MARKET FOR OTHER NATURAL SWEETENERS BY REGION, 2009-2016 (\$ MILLIONS)</i>	94
MARKET SHARES	94
<i>TABLE 41 GLOBAL NON-SUGAR SWEETENERS MARKET SHARES BY REGION, 2009</i>	94
<i>FIGURE 25 GLOBAL NON-SUGAR SWEETENERS MARKET SHARES BY REGION, 2009 (%)</i>	95
CHAPTER EIGHT: MARKET BY APPLICATIONS	96
APPLICATIONS IN CALORIC/NUTRITIVE SWEETENERS MARKET.....	96
BEVERAGES.....	96
Market Revenue	97
<i>TABLE 42 GLOBAL MARKET FOR BEVERAGES, THROUGH 2016 (\$ MILLIONS)</i>	97
<i>FIGURE 26 GLOBAL MARKET FOR BEVERAGES, 2009-2016 (\$ MILLIONS)</i>	98
FOOD PRODUCTS	98
Confectionery	99
Baked Products.....	99
Frozen Desserts	99
Market Revenue	100
<i>TABLE 43 GLOBAL MARKET FOR FOOD PRODUCTS USING CALORIC SWEETENERS, THROUGH 2016 (\$ MILLIONS)</i>	100
<i>FIGURE 27 GLOBAL MARKET FOR FOOD PRODUCTS USING CALORIC SWEETENERS, 2009-2016 (\$ MILLIONS)</i>	100
APPLICATIONS IN NON-CALORIC SWEETENERS/NON- NUTRITIVE SWEETENERS/HIGH-INTENSITY SWEETENERS MARKET.....	101
LOW-CALORIE CARBONATED BEVERAGES	101
Market Revenue	101
<i>TABLE 44 GLOBAL MARKET FOR LOW-CALORIE CARBONATED BEVERAGES, THROUGH 2016 (\$ MILLIONS)</i>	102

<i>FIGURE 28 GLOBAL MARKET FOR LOW-CALORIE CARBONATED BEVERAGES, 2009-2016 (\$ MILLIONS)</i>	102
SUGAR-FREE GUMS	102
Market Revenue	103
<i>TABLE 45 GLOBAL MARKET FOR SUGAR-FREE GUMS, THROUGH 2016 (\$ MILLIONS)</i>	104
<i>FIGURE 29 GLOBAL MARKET FOR SUGAR-FREE GUMS, 2009-2016 (\$ MILLIONS)</i>	104
TABLETOP SWEETENERS	104
Market Revenue	105
<i>TABLE 46 GLOBAL MARKET FOR TABLETOP SWEETENERS, THROUGH 2016 (\$ MILLIONS)</i>	106
<i>FIGURE 30 GLOBAL MARKET FOR TABLETOP SWEETENERS, 2009-2016 (\$ MILLIONS)</i>	106
OTHERS	107
Market Revenue	107
<i>TABLE 47 GLOBAL MARKET FOR OTHER NON-SUGAR, LOW-CALORIE PRODUCTS, THROUGH 2016 (\$ MILLIONS)</i>	107
<i>FIGURE 31 GLOBAL MARKET FOR OTHER NON-SUGAR, LOW-CALORIE PRODUCTS, 2009-2016 (\$ MILLIONS)</i>	108
MARKET SHARE OF APPLICATIONS OF FOOD ENZYMES	108
<i>TABLE 48 GLOBAL NON-SUGAR SWEETENERS MARKET SHARES, BY APPLICATION, 2010 (%)</i>	109
<i>FIGURE 32 GLOBAL NON-SUGAR SWEETENERS MARKET SHARES, BY APPLICATION, 2010 (%)</i>	109
CHAPTER NINE: PATENT ANALYSIS	110
PATENTS BY YEAR.....	110
<i>TABLE 49 SIGNIFICANT PATENTS BY YEAR, 2007-2011 (NUMBER/%)</i>	111
<i>FIGURE 33 NUMBER OF SIGNIFICANT PATENTS BY YEAR, 2007-2011</i>	111
<i>FIGURE 34 NUMBER OF PATENTS BY YEAR, 2007-2011 (%)</i>	112
PATENTS BY TYPE	112
<i>TABLE 50 PATENTS BY TYPE FOR SWEETENERS, 2007-2011</i>	112
<i>FIGURE 35 PATENTS BY TYPE FOR SWEETENERS, 2007-2011</i>	113
PATENTS BY CATEGORY	113
CALORIC SWEETENERS/NUTRITIVE SWEETENERS	113
<i>TABLE 51 CALORIC/NUTRITIVE SWEETENERS BY CATEGORIES, 2007-2011</i>	113
NON-CALORIC SWEETENERS/NON-NUTRITIVE SWEETENERS	114
Artificial Sweeteners	114
<i>TABLE 52 NON-CALORIC ARTIFICIAL SWEETENER PATENTS BY CATEGORIES, 2007-2011</i>	114

<i>FIGURE 36 NON-CALORIC ARTIFICIAL SWEETENER PATENTS BY CATEGORIES, 2007-2011</i>	115
Natural Sweeteners.....	115
<i>TABLE 53 NON-CALORIC NATURAL SWEETENER PATENTS BY CATEGORIES, 2007-2011</i>	116
<i>FIGURE 37 NON-CALORIC NATURAL SWEETENER PATENTS BY CATEGORIES, 2007-2011</i>	116
PATENTS BY COMPANY.....	117
CALORIC SWEETENERS/NUTRITIVE SWEETENERS	117
<i>TABLE 54 NUMBER OF U.S. PATENTS BY COMPANY FOR CALORIC SWEETENERS, 2007-2011</i>	117
NON-CALORIC SWEETENERS/NON-NUTRITIVE SWEETENERS	117
Artificial Sweeteners	117
<i>TABLE 55 NUMBER OF U.S. PATENTS BY COMPANY FOR NON-CALORIC ARTIFICIAL SWEETENERS, 2007-2011</i>	118
<i>FIGURE 38 NUMBER OF U.S. PATENTS BY COMPANY FOR NON-CALORIC ARTIFICIAL SWEETENERS, 2007-2011</i>	118
Natural Sweeteners.....	119
<i>TABLE 56 NUMBER OF U.S. PATENTS BY COMPANY FOR NON-CALORIC NATURAL SWEETENERS, 2007-2011</i>	119
<i>FIGURE 39 NUMBER OF U.S. PATENTS BY COMPANY FOR NON-CALORIC NATURAL SWEETENERS, 2007-2011</i>	120
PATENTS BY COUNTRY	120
CALORIC SWEETENERS /NUTRITIVE SWEETENERS	120
<i>TABLE 57 NUMBER OF U.S. PATENTS BY COUNTRY FOR CALORIC SWEETENERS, 2007-2011</i>	121
NON-CALORIC/NON-NUTRITIVE SWEETENERS.....	121
Artificial Sweeteners	121
<i>TABLE 58 NUMBER OF U.S. PATENTS BY COUNTRY FOR NON-CALORIC ARTIFICIAL SWEETENERS, 2007-2011</i>	121
<i>FIGURE 40 NUMBER OF U.S. PATENTS BY COUNTRY FOR NON-CALORIC ARTIFICIAL SWEETENERS, 2007-2011</i>	122
Natural Sweeteners.....	122
<i>TABLE 59 NUMBER OF U.S. PATENTS BY COUNTRY FOR NON-CALORIC NATURAL SWEETENERS, 2007-2011</i>	122
<i>FIGURE 41 NUMBER OF U.S. PATENTS BY COUNTRY FOR NON-CALORIC NATURAL SWEETENERS, 2007-2011</i>	123
<i>TABLE 60 PATENT SHARES BY COUNTRY FOR CALORIC AND NON-CALORIC SWEETENERS, 2007-2011 (%)</i>	123
<i>FIGURE 42 PATENT SHARES BY COUNTRY FOR CALORIC AND NON-CALORIC SWEETENERS, 2007-2011 (%)</i>	124
PATENTS BY ASSIGNEE	124
CALORIC SWEETENERS/NUTRITIVE SWEETENERS	124

<i>TABLE 61 PATENTS BY TYPE FOR CALORIC SWEETENERS, 2007-2011</i>	124
NON-CALORIC/NON-NUTRITIVE SWEETENERS.....	125
Artificial Sweeteners	125
<i>TABLE 62 PATENTS BY ASSIGNEE FOR NON-CALORIC ARTIFICIAL SWEETENERS, 2007-2011</i>	125
<i>FIGURE 43 PATENTS BY ASSIGNEE FOR NON-CALORIC ARTIFICIAL SWEETENERS, 2007-2011</i>	125
Natural Sweeteners.....	126
<i>TABLE 63 PATENTS BY TYPE FOR NON-CALORIC NATURAL SWEETENERS, 2007-2011</i>	126
<i>FIGURE 44 PATENTS BY ASSIGNEE FOR NON-CALORIC NATURAL SWEETENERS, 2007-2011</i>	126
CHAPTER TEN: CURRENT SITUATION AND MARKET PROSPECTS	127
MARKET DRIVERS	127
OBESITY DRIVING THE DEMAND OF NON-SUGAR SWEETENERS	127
INCREASING NUMBER OF PEOPLE WITH DIABETES	128
INCREASING HEALTH AWARENESS.....	128
POSITIVE ROLE IN DENTAL HEALTH.....	129
MATERIALS OF NATURAL ORIGIN AND CALORIE CONTROL.....	129
SECURING REGULATORY APPROVALS	129
MULTIPLE SWEETENER BLENDS	130
FUTURE PROSPECTS OF THE MARKET	130
CHAPTER ELEVEN: COMPANY PROFILES.....	131
A&Z FOOD ADDITIVES CO., LTD.	131
AJINOMOTO CO., INC.	131
ANHUI RUISEN BIO-TECH CO., LTD	132
ARCHER DANIELS MIDLAND COMPANY (ADMC).....	132
ATLANTIC CHEMICALS TRADING GMBH	133
AUSTRADE INCORPORATED	133
BECKMANN-KENKO GMBH	134
BIOVITTORIA	134
CARGILL.....	135
CELANESE CORPORATION	136
CHANGSHA NUTRAMAX, INC. - HUNAN FACTORY	136
COMMERCIAL BRIDGE INDUSTRY, LTD.	137
CORN PRODUCTS INTERNATIONAL, INC.	137
CUMBERLAND PACKING CORPORATION	138
DANISCO A/S	138
DULCETTE TECHNOLOGIES, LLC	139
FRAKEN BIOCHEM CO., LTD	139

FORBES INTERNATIONAL	140
GBT CARGILL HIGH FRUCTOSE (SHANGHAI) CO. LTD.....	140
GIRI HEALTH PRODUCT	141
GLG LIFE TECH CORPORATION	141
GOLDEN TIME ENTERPRISE (SHENZHEN) CO., LTD.....	142
HAITONG CHEMICAL INTERNATIONAL TRADING CO., LTD.....	143
HANGZHOU UNIWISE INTERNATIONAL CO., LTD.	143
HERMES SWEETENER, LTD.....	143
HILL PHARMACEUTICAL CO., LTD.	144
JIANTIN ENTERPRISES (NANJING) CO., LTD.	144
JIAYE (FUZHOU) IMPORT & EXPORT CO., LTD.....	145
JK SUCRALOSE, INC.....	145
KING WAY CORPORATION	146
LIFE SCIENCE ADVANCED TECHNOLOGY.....	146
MCNEIL NUTRITIONALS, LLC (US)	147
MERISANT WORLDWIDE, INC.....	147
NATUREX.....	148
NUTRASWEET COMPANY.....	148
NUTRILAB NV	149
PURECIRCLE.....	150
QINGDAO DONGXIAO INDUSTRY & TRADE CO., LTD.	150
ROQUETTE	151
SANXINYUAN FOOD INDUSTRY CORPORATION LIMITED	151
SHANDONG XIANGCHI JIANYUAN BIO-TECH CO., LTD.....	152
SHANGHAI HONGHAO CHEMICALS CO., LTD	153
SPHERIX, INC.....	153
TATE & LYLE.....	154
THE TNN DEVELOPMENT LIMITED.....	154
WHOLE EARTH SWEETENER CO., LLC	155
ZYDUS WELLNESS, LTD.	155
APPENDIX I—ABBREVIATIONS	156