Appendix

Conversion of absorbances into protein and carbohydrate concentrations

For protein concentrations, BSA standard curve:

$Y = MX + C$

Where;

Y = the absorbance; M = 0.0002; X = unknown concentrations and C = 0.2

An example; calculating the activity of savinase:

Time interval	Absorbance (Savinase)
0	0.421
15	0.397
30	0.388
45	0.370
60	0.330
75	0.290
90	0.260

Y = MX + C

0.421 = 0.0002X + 0.2

X = 1105 U/ml

For carbohydrate concentrations, glucose standard curve:

Y = the absorbance; M = 0.0006; X = unknown concentrations and C = 0.05

An example; calculating the activity of AMG:

Time interval	Absorbance (AMG)
0	0.120
15	0.118
30	0.110
45	0.090
60	0.088
75	0.071
90	0.060

Y = MX + C

0.120 = 0.0006X + 0.05

X = 116 U/ml

Y = MX + C

Commercial name	Type of enzyme	Manufacturer	Microorganisms source	Form	Optima		Application
					pH	Temperature	
Savinase 16L EX	Subtilisin	Novozyme	Genetically modified *Bacillus clausii*	Liquid	8-11	15-75°C	Laundry, automatic detergent, industrial and institutional laundry
Everlase 16L EX	Subtilisin	Novozyme	Genetically modified *Bacillus clausii*	Liquid	8-11	15-80°C	Detergent industry
Esperase 6.0 T	Subtilisin	Novozyme	*Bacillus lentus*	Liquid	8-11	20-60	Detergent industry
Polarzyme 6.0T	Subtilisin	Novozyme	Genetically modified *Bacillus spp*	Granules	9-11	20-40°C	Detergent industry
Fungamyl 800	Alpha Amylase	Novozyme	*Aspergillus oryzae*	Liquid	4-5.5	20-60	
AMG (Amyloglucosidase)	Glucoamylase	Novozyme	*Aspergillus niger*	Liquid	4-5	20-60°C	Food industry
BAN (Bacterial Amylase Novo)	Alpha Amylase	Novozyme	*Bacillus amyloliquefaciens*	Liquid	6-7	20-60°C	Food industry