

Session Plan

Subject: BIOLOGY

Class:	XII
Chapter Serial Number	12
Name of the Chapter:	BIOTECHNOLOGY AND ITS APPLICATION
Title of Learning Unit / Session	Biotechnology Applications in Medicines - Genetically Engineered Insulin /3
Time Required	50 min

Learning Objective / Outcome (3 min)	1. know the source, function and structure of insulin. 2.learn about deficiencies disease cause due to lack of insulin. 3.Identify structure of pro insulin& mature insulin. 4.know effects of animals insulin. 5.how to synthesis of artificial insulin.
Previous Knowledge (5min)	1. Define Biotechnology. 2. Describe about the process recombinant technology.
Gist of the Lesson for discussion (20 min)	1.Insulin secretion takes place from Pancreas. 2.It is necessary for lowering of blood glucose levels. 3.Insulin extracted from animals cause allergy. 4. First Artificial insulin synthesizing by an American Companie, Eli Lillian, 1983 5.They made two DNA correspond to Poly A and Poly B. 6.Introducing them in E.Coli separately 7.They culture them in growth medium and then two chains are separated 8.Later these chains are join by sulphur bond
Diagram / Link (2min)	
Activity / TLO / Link to video / animation/ etc (8 min)	ACTIVITY : http://www.zietbbsr.org/quiz/bioquiz/Chapter-11.htm http://zietbbsr.org/wif/BIOLOGY/quiz.html DIKSHA : https://diksha.gov.in/play/content/do_3129846791661486081144 YOU TUBE : https://www.youtube.com/watch?v=HSaFemVKtyc

	NROER https://nroer.gov.in/55ab34ff81fccb4f1d806025/file/5e7902c116b51c232c3fbc83
Recapitulation of the lesson (5min)	• Insulin is secreted by pancreas. • Deficiency of insulin cause diabetes. • Insulin prepare from animal cause allergy. • Pro insulin have 3 peptide chains. • Mature insulin have two polypeptide chains. • Artificial insulin synthesis by Eli Lilly ,an American company .
Instant test (Objective type- 5 questions (5 min)	1. Name the hormone that decreased glucose levels in the blood. a. Glycogen. b. Insulin c. Prolactin d. Oxytocin 2.How many polypeptide chains present in pro insulin a. One. b. Two. c. Three d. Four 3 . C- peptide of human insulin is a. A part of mature insulin molecule b. Responsible for formation of disulphide bridges c. Removed during maturation of pro-insulin to insulin d. Responsible for its biological activity. 4. _____ of human insulin is removed during maturation process. 5 . How are the two short polypeptide chains of insulin linked together?
Home Assignments (Written work) 3 min	1. How is a mature, functional insulin hormone different from its pro hormone form? 2. List the disadvantages of insulin obtained from the pancreas of slaughtered cows and pigs. 3. How is matured insulin differ from premature insulin? Give a schematic representation of formation of matured insulin from the premature one. Name the first company which could produce genetically engineered insulin and how? 4. Explain the process of insulin synthesis through biotechnology. 5. What are the advantages of recombinant insulin?
Video Lesson for Home viewing	Link: https://youtu.be/w9gltnZ39j8

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