

Name _____

Date _____

DNA Extraction Lab: Strawberry

Background: The long, thick fibers of DNA store the information for the functioning of the chemistry of life. DNA is present in every cell of plants and animals. Every cell in a strawberry contains eight copies of each of its chromosomes. As a result, strawberries contain large amounts of DNA. Strawberry DNA is easy to extract because strawberries are easy to mash, and ripe strawberries produce enzymes that contribute to the breakdown of cell walls. To extract the DNA, you will first break strawberry cells apart mechanically by crushing them. Next, you will add detergents to dissolve the cell's plasma membranes. A filtering step then removes cell organelles, broken cell walls, membrane fragments, and other cell debris. The result will be a red-colored solution containing DNA and other small dissolved molecules such as sugars and proteins. When cold isopropyl alcohol is layered on top of this solution, molecules of alcohol repel the DNA molecules and the DNA molecules clump together. A ropelike clump of many DNA molecules forms that is large enough to see with the unaided eye.

Pre-lab questions:

1. What do you think the DNA will look like?
2. Where is DNA found?
3. It is important that you understand the steps in the extraction procedure and why each step was necessary. Each step in the procedure aided in isolating the DNA from other cellular materials. Match the procedure with its function:

PROCEDURE

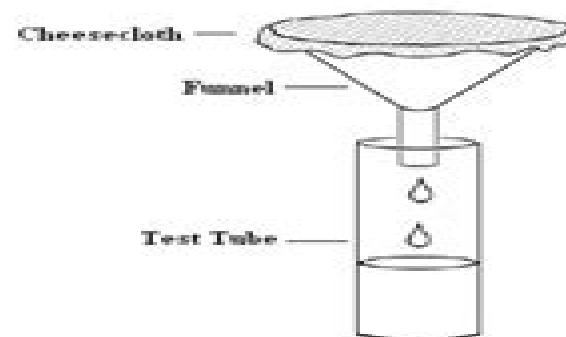
- A. Filter strawberry slurry through cheesecloth
- B. Mash strawberry with salty/soapy solution
- C. Initial smashing and grinding of strawberry
- D. Addition of ethanol to filtered extract

FUNCTION

- _____ To precipitate DNA from solution
- _____ Separate components of the cell
- _____ Break open the cells
- _____ Break up proteins and dissolve cell membranes

Materials:

Heavy duty Ziploc bag
1 strawberry
10 mL DNA extraction buffer (soapy, salty water)
Cheesecloth
Funnel
50mL vial / test tube
1 coffee stirrer
20 mL ice cold isopropyl alcohol
Watch glass
Test tube rack



Procedure:

1. Remove the green sepals from the strawberry. Place one strawberry in a Ziploc bag and seal the bag shut.
2. Smash/grind up the strawberry using your fist and fingers for 2 minutes. *Careful not to break the bag!*
3. Add the provided 10mL of extraction buffer (salt and soap solution) to the bag.
4. Knead/mush the strawberry in the bag again for 1 minute – *try not to make a lot of soap bubbles!*
5. Assemble your filtration apparatus as shown above/right.

Dna Extraction Lab Answers

Gail Patt, Anita Bennett



Dna Extraction Lab Answers:

Molecular Microbiology Laboratory Walt Ream, Bruce Geller, Katherine Field, 2012-08-31 Intends to teach principles and techniques of molecular biology and microbial ecology to upper level undergraduates majoring in the life sciences and to develop students scientific writing skills This title exposes students to the molecular based techniques It provides faculty with an accessible resource for teaching protocols WorldCat

Introduction to Biology National Agricultural Institute, 2014-08-27 Introduction to Biology is one in a series of Just The Facts JTF textbooks created by the National Agricultural Institute for secondary and postsecondary programs in biology agriculture food and natural resources AFNR This is a bold new approach to textbooks The textbook presents the essential knowledge of introductory biology in outline format This essential knowledge is supported by a main concept learning objectives and key terms at the beginning of each section references and a short assessment at the end of each section Content of the book is further enhanced for student learning by connecting with complementary PowerPoint presentations and websites through QR codes scanned by smart phones or tablets or URLs The textbook is available in print and electronic formats To purchase electronic copies inquire at info.nationalag.institute.org

Chemistry in the Laboratory James M. Postma, Julian L. Robert, J. Leland Hollenberg, 2004-03-12 This clearly written class tested manual has long given students hands on experience covering all the essential topics in general chemistry Stand alone experiments provide all the background introduction necessary to work with any general chemistry text This revised edition offers new experiments and expanded information on applications to real world situations

Bacterial Genetics and Genomics Lori Snyder, Lori A.S. Snyder, 2024-04-29 Understanding of bacterial genetics and genomics is fundamental to understanding bacteria and higher organisms as well Novel insights in the fields of genetics and genomics are challenging the once clear borders between the characteristics of bacteria and other life Biological knowledge of the bacterial world is being viewed under a new light with input from genetic and genomics Replication of bacterial circular and linear chromosomes coupled and uncoupled transcription and translation multiprotein systems that enhance survival wide varieties of ways to control gene and protein expression and a range of other features all influence the diversity of the microbial world This text acknowledges that readers have varied knowledge of genetics and microbiology Therefore information is presented progressively to enable all readers to understand the more advanced material in the book This second edition of Bacterial Genetics and Genomics updates the information from the first edition with advances made over the past five years This includes descriptions for 10 types of secretion systems bacteria that can be seen with the naked eye and differences between coupled transcription translation and the uncoupled runaway transcription in bacteria Topic updates include advances in bacteriophage therapy biotechnology and understanding bacterial evolution Key Features Genetics genomics and bioinformatics integrated in one place Over 400 full colour illustrations explain concepts and mechanisms throughout and are available to instructors for download A section dedicated to the application of

genetics and genomics techniques including a chapter devoted to laboratory techniques which includes useful tips and recommendations for protocols in addition to troubleshooting and alternative strategies Bulleted key points summarize each chapter Extensive self study questions related to the chapter text and several discussion topics for study groups to explore further This book is extended and enhanced through a range of digital resources that include Interactive online quizzes for each chapter Flashcards that allow the reader to test their understanding of key terms from the book Useful links for online resources associated with Chapters 16 and 17 Bacterial Genetics and Genomics Lori A.S. Snyder,2020-03-25 Our understanding of bacterial genetics has progressed as the genomics field has advanced Genetics and genomics complement and influence each other they are inseparable Under the novel insights from genetics and genomics once believed borders in biology start to fade biological knowledge of the bacterial world is being viewed under a new light and concepts are being redefined Species are difficult to delimit and relationships within and between groups of bacteria the whole concept of a tree of life is hotly debated when dealing with bacteria The DNA within bacterial cells contains a variety of features and signals that influence the diversity of the microbial world This text assumes readers have some knowledge of genetics and microbiology but acknowledges that it can be varied Therefore the book includes all of the information that readers need to know in order to understand the more advanced material in the book **Problem Solving Guide and Solutions Manual to Accompany Russell, Fundamentals of Genetics, First Edition** Gail Patt,Anita Bennett,1994 **Comparison of High School Science Students' Achievement in a Traditional Classroom to Students Enrolled in an Integrated Curriculum Course** Dawn Marie Schuen,1997 *The Bedford Reader* X. J. Kennedy,Dorothy M. Kennedy,Jane E. Aaron,Ellen Kuhl Repetto,2016-03-15 Long one of the most popular composition readers on the market The Bedford Reader provides compelling readings by excellent writers It takes a practical and flexible approach to the rhetorical methods focusing on their uses in varied writing situations The popular Writers on Writing feature illustrates the many ways writers create meaning from what they read and experience and the Kennedys instruction helps students connect critical reading to academic writing The twelfth edition provides even more helpful guidance for students on critical reading and writing a new appendix with advice on APA documentation and an updated selection of compelling readings The print text is now integrated with e Pages for The Bedford Reader designed to take advantage of what the Web can do with provocative new essays and multimodal selections **Addison-Wesley Biology** Addison Wesley,1996-04 **Lower Secondary Science Student's Book: Stage 9 (Collins Cambridge Lower Secondary Science)** Collins,2022-02-03 Inspire and engage your students with this Lower Secondary Science course from Collins offering comprehensive coverage of the new curriculum framework including suggested practical investigations and Thinking and Working Scientifically skills Science John Michels (Journalist),2005 **Handbook of Research on Science Literacy Integration in Classroom Environments** Tai, Chih-Che,Moran, Renee M. R.,Robertson, Laura,Keith, Karin,Hong, Huili,2018-10-12 Secondary schools are continually faced

with the task of preparing students for a world that is more connected advanced and globalized than ever before In order to adequately prepare students for their future educators must provide them with strong reading and writing skills as well as the ability to understand scientific concepts The Handbook of Research on Science Literacy Integration in Classroom Environments is a pivotal reference source that provides vital research on the importance of cross curriculum discipline connections in improving student understanding and education While highlighting topics such as curriculum integration online learning and instructional coaching this publication explores practices in teaching students how to analyze and interpret data as well as reading writing and speaking This book is ideally designed for teachers graduate level students academicians instructional designers administrators and education researchers seeking current research on science literacy adoption in contemporary classrooms *Nature* Sir Norman Lockyer,2005 **Science Educator's Guide to Laboratory Assessment** Rodney L. Doran,2002 The book opens with an up to date discussion of assessment theory research and uses Then comes a wealth of sample assessment activities in biology chemistry physics and Earth science Keyed to the National Science Education Standards the activities include reproducible task sheets and scoring rubrics All are ideal for helping students reflect on their own learning during science lab **The Prosecutor** ,1989 **Ri Im/Tb Reading and All That Jazz** Mather,2002-09 **McGraw-Hill Education Preparation for the GED Test 2nd Edition** McGraw Hill Editores, México,2015-05-29 Publisher's Note Products purchased from Third Party sellers are not guaranteed by the publisher for quality authenticity or access to any online entitlements included with the product This new edition of the bestselling GED practice review guide is now bigger and better than ever Covering all four test subject areas Reasoning Through Language Arts RLA Social Studies Science and Mathematical Reasoning McGraw Hill Preparation for the GED Test gives you intensive review and practice in all subject areas of the exam Pretests for each test section help you identify strengths and weaknesses before starting your study Learning objectives are based on the Common Core State Standards just like the real exam Full length practice tests with complete answer explanations are modeled on the actual exam Filled with exercises for reinforcing new skills and quizzes for measuring progress *Immunology* Hannah D. Zane,2001 IMMUNOLOGY Theoretical and Practical Concepts in Laboratory Medicine provides a comprehensive yet concise summary of fundamental and advanced immunologic concepts and procedures This modern up to date text contains new information regarding molecular techniques in the field The text supplements the required procedures manuals by emphasizing the theoretical aspect of the methods quality assurance and the validity of test results as well as the application of laboratory finding to the diagnosis and monitoring of representative disease states Energy Research Abstracts ,1994-03 **Holt Chemistry** Ralph Thomas Myers,2004

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