

# ISOLATION OF KERATINOLYTIC BACTERIA FROM FEATHER DUMPING

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**What keratinolytic bacteria is isolated from feather waste?** The most studied keratinolytic bacteria are *Bacillus* spp., which have been described to possess feather-degrading activity (9,14). *Bacillus licheniformis* is a well known keratinolytic organism, possessing the gene *kerA*, which has been cloned and sequenced (13).

**What is the feather-degrading bacteria isolation?** A feather-degrading culture was enriched with isolates from a poultry waste digester and adapted to grow with feathers as its primary source of carbon, sulfur, and energy. Subsequently, a feather-hydrolytic, endospore-forming, motile, rod-shaped bacterium was isolated from the feather-degrading culture.

**How to isolate keratinase?** For the isolation of keratinase-producing strains, 2 g of the soil sample was incubated in 18 mL of distilled water at 30 °C and 200 rpm. After 48 h, 100 µL of the sample was spread on casein agar plate (30 g casein, 1.4 g K<sub>2</sub>HPO<sub>4</sub>, 0.7 g KH<sub>2</sub>PO<sub>4</sub>, 5 g NaCl, 0.1 g MgSO<sub>4</sub> and 20 g agar per litre distilled water).

**What is the composition of feather meal agar?** Feather medium preparation The feather meal broth used for isolation, maintain and, growth of bacteria was made by adding 0.5 g of NH<sub>4</sub>Cl, 0.5 g of NaCl, 0.3 g of K<sub>2</sub>HPO<sub>4</sub>, 0.4 g of KH<sub>2</sub>PO<sub>4</sub>, 0.1 g of MgCl.

**What are the sources of keratin waste?** Keratin waste is collected in vast amounts from marketable poultry production plants, leather factories, wool industry, textiles industry and slaughterhouses (Fig. 1). These residues arising from industrial waste

can pose a significant threat to environmental conditions and human lives (water, air and soil) [20].

**How do you treat chicken feather waste?** Conventional methods of processing chicken feathers such as landfilling, chemical treatment and burning are costly, non-time consumable and are toxic to the environment. Microbial hydrolysis, on the contrary, is now considered the main environmental-friendly recycling alternative.

**What are two common methods for isolating bacteria?**

**What are the steps of bacterial isolation?** Isolation of bacteria involves various steps – Specimen collection, Preservation and transportation of specimen, Microscopic examination of sample. Various methods used for isolation of bacteria culture methods which includes culture on solid or liquid media and automated system.

**What media is used for bacterial isolation?**

**What is the optimum temperature for keratinase?** Most keratinases possess an activity optimum in the range of 30~80 °C, for example, keratinase from *B. pseudofirmus* AL-89 is of 60~70 °C (Gessesse et al., 2003), *Nocardiosis* sp. TOA-1 is of 60 °C (Mitsuiki et al., 2004), and a few have exceptionally high temperature optimum of 100 °C (Nam et al., 2002).

**How is keratin isolated?** The fundamental keratin isolation methods used for this purpose in the literature are physicochemical methods [9], enzymatic reactions by hydrolysis of the novel keratinase [10], alkali/acid handling [11], oxidation [12], reduction hydrolysis [13] and processing in ionic solutions [14].

**What does keratinase do to skin?** These bacteria can excrete keratinase, which degrades the skin and causes the characteristic pitting.

**How to process feather meal?** Pressurized cooking is the primary method of processing used to make feather meal. Feathers are first cooked under steam pressure (for instance for 30-40 min at 143 °C under 3 atm) and then dried (90-110°C for 5 h) (Strzetelski et al., 1999).

**What is the composition of feather keratin?** The structure is based on a  $\alpha$ -helix; i.e., an extended chain which coils slowly to form a helix of relatively large pitch. Such helices tend to aggregate by hydrogen bonding to form cylindrical units, which in turn can aggregate further into cable-like structures.

**When to apply feather meal?** DTE Feather Meal should be incorporated into soils before planting or side dressed throughout the growing season to provide a steady release of nitrogen necessary for optimum plant growth.

**Can keratin be found in feathers?** Hair, fur and feathers are just a few of many specialized structures composed of keratin. Others include nails, beaks, horns, claws, hooves, quills, whiskers, baleen, turtle shell, and scales.

**What is *Aspergillus niger* isolated from?** *Aspergillus niger* is among the most common fungi isolated from nuts (peanuts, pecans, pistachios, hazelnuts, walnuts, kola nuts, coconut and copra). Cereals and oilseeds are also frequent sources, especially maize, but *A. niger* can be isolated from almost any type of stored commodity.

**What are the examples of keratinolytic fungi?** Keratinolytic enzymes are widespread in nature and are produced by several microorganisms including bacteria such as *Bacillus* sp. (Korkmaz et al., 2004); *Fervidobacterium islandicum*, *Elizabethkingia meningoseptica*, *Pseudomonas aeruginosa* KS-1 (Sharma and Gupta, 2010); actinomycetes such as *Streptomyces* sp.

**What bacteria breaks down keratin?** Bacteria are major contributors of keratin degradation and have the ability to produce keratinase. Such bacteria include the *Bacillus*, e.g., *B. licheniformis*, *B. cereus*, and *B.*

### **Skandalakis Surgical Anatomy: Unveiling the Basis of Surgical Practice**

Skandalakis' Surgical Anatomy is a renowned two-volume set that provides a comprehensive understanding of surgical anatomy, bridging the gap between embryology and surgical technique. It serves as an invaluable resource for surgeons and medical professionals seeking an in-depth understanding of human anatomy and its application to surgical procedures.

**Q: What is the significance of Skandalakis' Surgical Anatomy in surgical practice?**

A: Skandalakis' Surgical Anatomy provides a thorough foundation for surgical practice by linking embryologic development to the anatomic structures relevant to surgical interventions. Its detailed descriptions and illustrations help surgeons visualize the complex relationships between anatomical structures and understand their variations.

**Q: How does Skandalakis' Surgical Anatomy differ from other surgical anatomy texts?**

A: Skandalakis' Surgical Anatomy is unique in its extensive coverage of surgical anatomy based on embryologic principles. It not only describes the anatomy but also explains how surgical techniques should be adapted to the variations in anatomical structures.

**Q: What are the benefits of using Skandalakis' Surgical Anatomy for surgical education?**

A: By integrating embryology with surgical anatomy, Skandalakis' Surgical Anatomy enhances the understanding of anatomical structures and their clinical significance. This comprehensive approach prepares surgeons-in-training for surgical practice by providing them with a deep understanding of the underlying anatomy and its implications for surgical decisions.

**Q: Is Skandalakis' Surgical Anatomy suitable for all surgical subspecialties?**

A: Yes, Skandalakis' Surgical Anatomy is a comprehensive resource applicable to various surgical subspecialties. Its detailed coverage of general, vascular, thoracic, abdominal, head and neck, and orthopedic anatomy makes it a valuable reference for surgeons across different fields.

**Q: What are the key features of Skandalakis' Surgical Anatomy?**

A: Skandalakis' Surgical Anatomy features high-quality illustrations, schematic diagrams, and detailed descriptions of anatomical structures, embryologic

development, variations, and surgical implications. It also includes clinical notes, imaging studies, and surgical case studies to reinforce the practical application of the anatomical knowledge.

## **The Best in VFR Airport Information: A Pilot's Guide**

Navigating the vast airspace effectively requires pilots to access reliable and comprehensive airport information. The following guide answers some key questions to provide pilots with the best VFR airport resources available:

### **1. What is the most accurate source of VFR airport information?**

The official Airport/Facility Directory (A/FD) published by the FAA serves as the most authoritative source. It contains detailed information on all U.S. public-use airports, including runway lengths, lighting, fuel availability, and other essential data.

### **2. How can I access the A/FD online?**

The A/FD is available for free on the FAA's website at <https://www.faa.gov/airports/afd/>. Pilots can search for specific airports or browse the directory by state, city, or region.

### **3. What are other reputable sources of VFR airport information?**

- **AirNav:** Provides detailed airport and airspace information, including runway diagrams, instrument approach procedures, and weather data.
- **ForeFlight:** A comprehensive mobile app that offers real-time airport information, including weather, NOTAMs, and fuel prices.
- **Garmin Pilot:** Similar to ForeFlight, Garmin Pilot provides access to airport data, flight planning tools, and moving maps.

### **4. What information should I prioritize when reviewing VFR airport information?**

- Runway dimensions and surface type
- Airport lighting and availability
- Fuel quality and availability

- Communication frequencies
- Any special procedures or restrictions

## 5. How can I ensure my airport information is current?

Checking the NOTAMs (Notice to Air Missions) for the intended airport and surrounding airspace is crucial. NOTAMs provide timely information on airport closures, runway construction, or any other changes that may affect VFR operations.

**What are QBasic answers?** QBasic is an integrated development environment (IDE) and interpreter for a variety of dialects of BASIC which are based on QuickBASIC. Code entered into the IDE is compiled to an intermediate representation (IR), and this IR is immediately executed on demand within the IDE.

**What is an example of QBasic?** Examples of QBASIC PRINT "Hello, World!" PRINT num, "is even." PRINT num, "is odd." These are just a few simple examples of the types of programs that can be created with QBasic.

## What are the three types of QBasic?

**What is the formula of QBasic?** In QBasic an equation has a basic setup a right side and a left side. For instance  $X=5$ , as you can probably figure out, this sets the variable  $X$  to 5. But we can use variables on the right side too.  $Y=X*10$  would set  $Y$  equal to 10 times  $X$ , in this situation, 50.

## What are the BASIC commands in QBasic?

**Is QBasic still used?** QBasic is a programming language that uses the BASIC language. It is DOS-based, old and out-of-date. There is no reason to be using it in 2017. If you interested in something similar, more modern but still pretty easy to use then check out alternatives such as Xojo.

**What language does QBasic use?** Microsoft QuickBASIC (also QB) is an Integrated Development Environment (or IDE) and compiler for the BASIC programming language that was developed by Microsoft. QuickBASIC runs mainly on DOS, though there was also a short-lived version for the classic Mac OS.

**How do I run the QBasic code?** At the C:\> prompt (or at the C:\Windows> prompt), type QBASIC and press the ENTER key and the QBASIC editor appears. Press the ESC key to clear the dialog (Welcome) box. Start typing your program.

**How do you write a QBasic statement?**

**What are the rules of QBasic?** All QBasic programs are made up of series of statements, which are executed in the order in which they are written. 2. Every statement should have at least one QBasic command word. The words that BASIC recognizes are called keywords.

**What are the five elements of QBasic?**

**How many loops are used in QBasic?** QBASIC provides three types of looping statements: FOR NEXT loop, WHILE-WEND loop and DO UNTIL loop. FOR. NEXT command is used to execute a part of a program a certain number of times. In nested FOR-NEXT loop, one FOR-NEXT statement is within another FOR-NEXT statement.

**What does Q in QBasic stand for?** The full form of QBASIC is Quick Beginner's All-Purpose Symbolic Instruction Code.

**How to make a circle in QBasic?** Draws a circle or ellipse on the screen. Useful and cross-version information about the programming environments of QBasic, QuickBasic and Visual Basic for DOS. CIRCLE [STEP] (x!,y!),radius![ ,[color%] [,start!]

**How do you write a function in QBasic?** Like SUB procedures, you can create a FUNCTION by typing FUNCTION and the name you wish to give it in the compiler window and a separate window will be displayed for you to create the function. You can then use the F2 key to "toggle" among functions and modules.

**What are QBasic words?** · 2y. Keywords are formed by using characters of QBASIC Characters Set. Keywords are statements, commands, functions (built in functions) and names of operators. The keywords are also called Reserved Words. Some reserved words are CLS, REM, INPUT, LET, PRINT, FOR, DO, SELECT, MID\$, ASC, SQR, LEN, LEFT\$, TIME\$ and INT.

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**What does QBasic stand for?** The full form of QBASIC is Quick Beginner's All-Purpose Symbolic Instruction Code.

**What is QBasic expression?** Expressions are used in QBASIC in order to perform calculations. In general, an expression may consist of a single constant or a single variable, or of arithmetic operation involving two or more constants or two or more variables, or of any arithmetic combination of constants and variables.

**What are QBasic functions?** By definition, a function is a subprogram designed to perform a specific task and return a value. In QBasic, there are two types of functions: standard or "built-in" and user-defined.

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