## Time Schedule of Parallel Session

**Day/Date:** Thursday/21st August 2014  
**Time:** 13.00 – 16.40  
**Room:** Bio 02

<table>
<thead>
<tr>
<th>No</th>
<th>Time</th>
<th>Name</th>
<th>Title</th>
<th>Instantation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13.00 – 13.20</td>
<td>Almuddin Ali, Nurliela Alydrus, Moh. Sahruil Tamsir, Andi Asrini Nurani Ulfia, and Ruqman Muslimin</td>
<td>PHOSPHATE-SOLUBILIZING ACTINOMYCETES ISOLATED FROM RHIZOSPHERE OF MANIHOT UTILISIMA IN SOUTH SULAWESI</td>
<td>State University of Makassar</td>
</tr>
<tr>
<td>2</td>
<td>13.20 – 13.40</td>
<td>Amirullah, Nasaruddin, Waode Harla, and Husnaeni</td>
<td>THE DIVERSITY OF ANOPHELES SPP MOSQUITOS SPECIES IN TRADITIONAL MINING AREAS ON DISTRICT OF BAROWATU UTARA, BOMBANA REGENCY</td>
<td>Halu Oleo University Open University of Makassar, Open and Distance Learning Program Unit (UPBI)</td>
</tr>
<tr>
<td>3</td>
<td>13.40 – 14.00</td>
<td>Andi Nurul Virinda, Siti Widyanam Syam, Nur Aini Yusrif, Sri Walyuni, and Reski Ramadani</td>
<td>LABUJ: MANUFACTURING THE WET NOODLE FROM FLOUR AND CLARIAS BATRACHUS FLESH WITH FORTIFICATION OF PUMPKIN</td>
<td>State University of Makassar</td>
</tr>
<tr>
<td>4</td>
<td>14.00 – 14.20</td>
<td>Almuddin Ali, Hasniati, Pasmawati, Irnawati, Moh. Sahruil Tamsir</td>
<td>ISOLATION OF PHOSPHATE-SOLUBILIZING FUNGI FROM RHIZOSPHERE OF MANIHOT UTILISIMA IN SOUTH SULAWESI</td>
<td>State University of Makassar</td>
</tr>
<tr>
<td>5</td>
<td>14.20 – 14.40</td>
<td>Mohamad Padri, Suriasto, Andi Andriana, Aji Maulana And A. Nurul Virinda</td>
<td>IDENTIFICATION OF PHYSICAL AND SOCIAL ECOTOURISM POTENTIAL IN RAMMA VALLEY AT BAYAKARAENG MOUNTAIN SOUTH SULAWESI</td>
<td>State University of Makassar</td>
</tr>
<tr>
<td>6</td>
<td>14.40 – 15.00</td>
<td>Muhammad Wiharto, Hamka, L. Fatma H., Syamsiah Abdul Hamid, Satrani</td>
<td>DIVERSITY AND INDICATOR SPECIES OF HERBACEOUS UNDERSTORY VEGETATION AT FOREST DOMINATED WITH VITEX COFASUS ON MOUNT BAYAKARAENG</td>
<td>State University Of Makassar</td>
</tr>
</tbody>
</table>
PHOSPHATE-SOLUBILIZING ACTINOMYCETES ISOLATED FROM RHIZOSPHERE OF Manihot utilissima IN SOUTH SULAWESI

Alimuddin Ali¹, Nurlaela Alydrus², Moh. Sahrul Tamsir³, Andi Asrini Nurani Ulfa¹, and Rukman Muslimin²
¹,²,³ Department of Biology, State University of Makassar
beasiswa.rukman@gmail.com

Abstract
The study was conducted to isolate actinomycetes that responsible to solubilize inorganic phosphate. Soil samples were collected from rhizosphere of Manihot utilissima from seven districts (Takalar, Gowa, Pangkep, Pirangan, Pare-Pare, Jeneponto, and Sidrap) in South Sulawesi Province. The isolation of actinomycetes was done by using Starch Casein Agar (SCA) and incubated at 30°C. Characterization of phosphate-solubilizing potentiality was done by using Pycovskaya media, clear zone indicated potentiality of phosphate-solubilizing. There were 14 isolates obtained which is 3 isolates had ability to solubilize phosphate. Isolate SDR 1 showed as the best to solubilize phosphate. All of the isolates were identified as Streptomyces spp. based on colony morphology and microscopic study.

Keywords: Actinomycetes, Rhizosphere, phosphate-solubilizing, Sterptomyces spp.


MOHS MICROGRAPHIC MODIFICATION SURGERY IN HANDLING AND ROTATION FLAP BASAL CELL CARCINOMA

Irma Suryani Idris¹ and Anis Irawan Anwar²
¹Jurusan Biologi, Fakultas MIPA Universitas Negeri Makassar
²Bagian Kulit dan Kelamin Fakultas Kedokteran Universitas Hasanuddin
Makassar

Abstract
Basal cell carcinoma (BCC) is a malignant neoplasm originate in the basal layer of the epidermis. BCC are the commonest form of skin cancer and are seen typically on the face in elderly or middle-aged subjects. They arise from the basal keratinocytes of the epidermis, are locally invasive, but very rarely metastasize. One case BCC was reported in a 43 years old man. Diagnosis was established based on history taking, clinical features, histopathology examination through modified mohs micrographic surgery technique (MMS). The management for this patient was rotation flap technique and gave a good improvement.

Keywords: Basal cell carcinoma, modified mohs micrographic surgery(MMS), rotation flap
Phosphate-Solublizing Actinomycetes Isolated from Rhizosphere of *Manihot utilisima* in South Sulawesi

Alimuddin Ali, Nurlaela Alydrus, Moh. Sahrul, Andi Asrini Nurani Ulfia, Rukman Muslim

Department of Biology, Faculty of Mathematic and Natural Sciences, Universitas Negeri Makassar, South Sulawesi, Indonesia, 90222

Abstract

The study was conducted to isolate Actinomycetes that responsible to solubilize inorganic phosphate. Soil samples were collected from rhizosphere of *Manihot utilisima* from sever districts in South Sulawesi provinces. Isolation of Actinomycetes was done by using Starch Casein agar (SCA). Characterization of phosphate-solubilizing potentiality was done by using Pyrovskaya media, clear zone surrounding isolate was indicated potentiality of phosphate-solubilizing. Four of 14 isolates were obtained had ability to solublize phosphate. Strain SDR 1 showed as the high ability to solublize phosphate. All of the isolates were identified belong to *Streptomyces* spp based on colony morphological.

Keywords: Actinomycetes, rhizosphere, phosphate-solublizing, *Streptomyces*

1. Introduction

Indonesia, geographically located in the tropics has a very high diversity of organisms. Soil fertility in tropical areas is strongly supported by the acticity of microbes that are able to convert the organic components into inorganic components that can be used for growing of plants.

The role of microbes in the soil is very diverse, but mostly plays a role in the material cycle. One of the microbes which has particularly important role is Actinomycetes. It is a gram positive bacteria form filaments which are common in various types of soil (Madigan *et al.*, 2005). Actinomycetes lives as a saprophyte and actively decomposing organic matter.

Interaction of microbes to its biotics environment is important especially in nutrient cycling (Franco-Correa *et al.*, 2010). Plants requires elements of macro and micro nutrients for growth, one of elements that very essential for plants is phosphate (P).
According to Donahue et al., 1990 phosphate is an essential element after nitrogen which is needed for the process of plant growth.

Phosphate is necessary for generative growth of plants. Phosphorus in the soil, 70% are insoluble or binding with other elements. It makes the plant can not absorbs these element and must be converted into a form available to plants (solublizing phosphates) (Prema-Akhaury et al., 1997).

This study focused to obtained Actinomycetes which a high phosphate solublizing ability, it is expected that selected isolates can be used as biofertilizer agent to increase availability of phosphate especially for cassava cultivation. The soil samples were used from the cassava plant rhizosphere.

The study aims to select isolates that potentially solublizing phosphate and characteriz of selected isolates.

2. Material and Method

Collection of rhizosphere soil sample

Soil samples were obtained from the soil rhizosphere of cassava plant of 7 district (site location) in South Sulawesi, Indonesia (Gowa, Pangkep, Pinrang, Parepare, Jeneponto and Sidrap). Samples were taken using a sterile tools and placed into a plastic sample and carried out immediately sent back to the laboratory.

Isolation of Actinomycetes

A total of 5 g of soil put into the Erlenmeyer flask containing 50 mL of sterile distilled water and then heated (heat shock) in water bath at 70°C for 1 h. Approximately 1 mL soil suspension was transferred into 9 mL of steril distilled water, and then 0.1 mL of sample dilution was spread into Starch Casein agar (2 g KNO₃, 2 g NaCl, 0.30g Casein, 0.05g MgSO₄7H₂O, 0.02g CaCO₃, 0.01g FeSO₄7H₂O, 10g soluble starch, 2g K₂HPO₄, 15g agar, 1000 mL distilled water, pH 7.3). Plates were incubated at 30°C for 2 weeks, and colonies showing the Actinomycetes character further re-isolation to obtain pure colonies.

Screening of Phosphate-Solublizing

Isolates were streaked onto Pikovskaya media (0.25g yeast extract, 5g dextrose, 2.25g Ca₃(PO₄)₂, 0.25g (NH₄)₂SO₄, 0.1g KCl, 0.05g MgSO₄7H₂O, 0.005g FeSO₄7H₂O, 0.005g MnSO₄.H₂O, 15g agar, pH 7.0±0.2) to determine the ability of
phosphate solublizing. The agar plate was incubated at 30°C for 7 days. Isolate was show phosphate solublizing indicated with the presence of a clear zone around the colony. Evaluation of phosphate solublizing ability was performed by calculate ratio of diamater colony and clear zone.

**Morphological characteristic**

Morphological characteristics of spore chains, the selected strains were grown on SC agar by using slide culture method and spore morphology were assessed by light microscopy after incubated for 2 weeks.

3. Result and Discussion

A total 14 of Actinomycetes isolates were obtained in the study (Table 1). All isolates were obtained belonging to the genus Streptomyces. Ali et al 2009 revealed that it is possible caused streptomyces have a high ability to adapt at and compete in the environment. In earlier work, actinomycetes that were isolated from rhizosphere of corn were shown to be capable of phosphate solublizing activities, belonging to genus streptomyces (Olievera et al., 2008).

Table 1. Strain of Actinomycetes isolated from rhizosphere of cassava plant

<table>
<thead>
<tr>
<th>No.</th>
<th>Strain code</th>
<th>Ratio of isolate</th>
<th>Genus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PR2a</td>
<td>-</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>2</td>
<td>PRG 3B</td>
<td>-</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>4</td>
<td>Gowa 1C</td>
<td>1.58</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>5</td>
<td>PTLS 1C</td>
<td>2.25</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>6</td>
<td>TKL 3a</td>
<td>-</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>7</td>
<td>TKL 1B</td>
<td>-</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>8</td>
<td>TKL 1D</td>
<td>-</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>9</td>
<td>PNK 1a</td>
<td>-</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>10</td>
<td>SDR 2a</td>
<td>-</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>11</td>
<td>SDR 1</td>
<td>3.71</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>12</td>
<td>SDR 9.9</td>
<td>1.68</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>13</td>
<td>JNP 1B</td>
<td>-</td>
<td>Streptomyces</td>
</tr>
<tr>
<td>14</td>
<td>SMT 01</td>
<td>-</td>
<td>Streptomyces</td>
</tr>
</tbody>
</table>

The result of study showed that 4 of 14 isolates were obtained had ability to solublize phosphate. Those were Gowa 1C, 1C-1C PTLS, SDR 9.9 and SDR 1. Ratio of phosphate solublizing was measured by comparing the average diameter of isolates and average diameter of the clear zone. The highest ratio of phosphate solublizing was SDR1 and the lowest was Gowa 1C. Value of ratio indicates the ability of phosphate solublizing of isolate. Isolate SDR 1 was observed under light microscope to determine the shape of the spore.
chain (Fig 1). Morphological observations on a 2-week-old culture of the strain SDR 1 grown on ISP2 medium revealed the typical characteristics of the genus *Streptomyces*.

![Spore chain of SDR 1 under light microscope (100x)](image)

4. Conclusion

Our study revealed the abundance and diversity of *Streptomyces*-like microbes in the soil rhizosphere of cassava plant. This rhizosphere represents a potential new source of actinomycetes that capable solublizing phosphate. One selected strain described in the present study, SDR1 showed high ability to solublize phosphate and has the potential to be developed as a biofertilizer.

References


