



# CERTIFICATE

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### Gibberellin acid induced germination of *Impatiens balsamina* mutan seeds exposed by Cryzalin and Gamma Radiation

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**ABSTRACT** - Garden balsam is an exotic flowering plant. Gamma ray (0,5,10,15, 6y) and cryzalin (0,00,0,01 and 0,02 %) were applied to seedlings. MA the increasing variation in flower colour and morphology of *Impatiens balsamina*. Some mutant plants were difficult to germinate and require special treatment to enhance the plants' multiplication. Gibberellin (GA) can induce germination of the mutant seed. Immersion in GA (in 24 hours) improved the percentage of seed germination and the growth of seedlings was vigorous. Cryzalin and gamma radiat on enhanced flower morphology. In addition, the reproductive phase was inhibited after treatment of 5 Gy and 0,01% cryzalin. 10 Gy and 0,01% cryzalin and 15 Gy and 0,02%. Control plants started flowering at 10 weeks after planting but treatment plants began flowering after only 12 weeks after planting.

**Keywords**: germination, seedlings, Gibberellin, garden balsam

### Geothermal Energy for Electricity Generation in Indonesia

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**ABSTRACT**- Geothermal energy is counted as a type of renewable energy, which means the availability is not affected by the lack of source and the increasing price of fossil oil. Environmental friendliness is also one of the advantages of geothermal energy. Not all countries have the potential of geothermal energy, only countries traversed by the ring of fire have the geothermal energy resource. As one of the countries that is traversed by the world's ring of fire, Indonesia hence holds geothermal potential, which is evidenced by the existing 137 active volcanoes spread across the country. Indonesia's geothermal energy potential is estimated at about 40% of the world's geothermal energy potential or about 28.617 MW. However, only about 4.3% is being utilized as electrical energy in the country. The government of Indonesia is continuously working towards increasing the capacity of geothermal power plants. It is planned to install more geothermal power plants in Indonesia that will amount up to 9500 MW by 2025.

**Keywords**: Geothermal, Electricity, Energy, Renewable Energy

### Copula Modeling in Analysis of Deterioration Production and Rainfall

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**ABSTRACT** - Copula is a method that examines the relationship between variables. Copula is characterized as a nonparametric benefits, i.e., it is independent to the assumption of a nonlinear relationship among variables, and its distribution. This study investigates the relationship of the copula approach. The method is applied to the production and the amount of rainfall. The results show that the best model for rainfall and oil palm pro

**Keywords**: Relationship, Correlation Coefficient, WLS Copula, Maximum Likelihood Estimation

### Feasibility Study of Energy at Kuwari O Future New Renewable Energy (Case Stu. Bantul, D. I Yogyakarta, Ind

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**ABSTRACT** - The problem of climate change was discussed in a conference in Hamburg, Germany on July 7-8, 2017. 190 and other organizations, Indonesia, one of the biggest thousands of islands which could potentially be an some land. In addition, climate change will lead to absorption, and genetic changes. One way to control climate renewable energy, such as the utilization of sea wave into electrical energy using ocean waves converted as potential of ocean waves in the world, especially in [ESDM, 2015]. Along the south coast of Java to Nusa T of 10 - 20 kW / meter, while on the west coast of reached 40 kW / meter, reached 6.3 million km<sup>2</sup> 180 is wave energy, the Indonesian sea also has the potential energy such as ocean wave. To increase the contribution renewable energy, and this can be a mixed energy