



St. Fatmah Hiola&lt;fatmah.hiola@unm.ac.id&gt;

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 Kepada: St. Fatmah Hiola <fatmah.hiola@unm.ac.id>

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## International Journal of Science and Research (IJSR)

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<b>Email</b>	<a href="mailto:fatmah.hiola@unm.ac.id">fatmah.hiola@unm.ac.id</a>
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# Orchids Conservation by Community in Round Mallawa Resort Areas at Bantimurung Bulusaraung National Park, South Sulawesi

Siti Fatmah Hiola, Gufran Darma Dirawan, Muhammad Wiharto

Universitas Negeri Makassar, Makassar, Indonesia

**Abstract:** *This research aims to determine cultivation technique of orchid by the community in around Mallawa Resort at Bantimurung Bulusaraung National Park. The type of the research is a descriptive research. This studying was conducted in four villages. The method used in this study was observed in the houses of people who become the interviewees, then do an interview about cultivation technique of orchid and documentation by photos. The results showed that there are three kinds of orchid's growth nature, namely Epifit, Terrestik, and Litofit. Orchid's growth is dominated by the Epifit orchid's growth as much as 110 or-chids, whereas for the type of growth is dominated by simpodial orchids. Most communities who maintain or-chids are the people residing in the Tellumpanuae village. The maintained of orchids average until ten years. People obtain orchids from the forest. It is not planted directly, but first, must be stored in moist example near a water bath so that the orchids can grow back fresh and good. Orchids that have been transplanted into pots usually doused with water that mixed with vetz'in (flavor in food) or rice water, because these two components can make orchids thrive. Of the three parameters appear that Phalaenopsis amabilis is an orchid species that can adapt to various conditions.*

**Keywords:** Cultivation Technique, Orchid, Mallawa Resort, Bantimurung Bulusaraung National Park

## 1. Background

Germplasm conservation of orchids is crucial to do given the magnitude of the loss rate of orchid species in the forest as a result of the many enthusiasts of orchid species in the market because of the uniqueness and authenticity, so a lot of looting orchid species to meet the needs of the market as well as the further degradation of the forest ecosystem either as a result of human activities or natural events. Germplasm conservation of orchids also aims to safeguard the existence of germplasm orchids and provide genetic resources extensively as base material activity of plant breeding, of germplasm that breeders of orchids can get a genotype is desirable, therefore that germplasm collection is useful breeding, then the characterization data and data evaluation should be available [1].

One of the conservation efforts that need to be protected biodiversity Bantimurung Bulusaraung the National Park which has the genetic diversity of wild orchids are quite a lot, so it needs to be done to protect the conservation of natural resources is so valuable that can increase the potential for germplasm as an ornamental plant for the long term. At this time recognized orchid plants have significant economic value, causing the high public interest to do maintenance orchid plants as ornamental flowers that are in the area.

It did not escape the attention of citizens around the national parks, mainly in the area around the Mallawa resort. A brief look at several houses some orchids grow well maintained. Based on observations that have been made known to the majority of orchids are from in and around the national park area. It has attracted the interest of researchers to examine further how the orchid development techniques to the communities surrounding the resort Mallawa, Bantimurung-Bulusaraung National Parks. We hope this research can be

the initial data in the development of native orchids in the future

## 2. Method

### 2.1. Type of Research

This kind of research is detailed research to provide a description of how the maintenance of community-based natural orchid in the Mallawa Resort of the Bantimurung-Bulusaraung National Park.

### 2.2. Time and Place

The field research was carried out in June-October 2014. The study was conducted in four villages in Mallawa Resort of the conservation area at Bantimurung-Bulusaraung National Park i.e. Tellumpanuae, Bentenge, Uludaya, and Samaenre. The Mallawa Resort is located about 90 km east of Makassar City and 60 km east of Maros City.

### 2.3. Material and Tools

Materials used for this research were orchid plant guidebooks. Several books including Tropical Orchids of Southeast Asia [2], Orchid Species Culture: Dendrobium. [3], Orchids of Java [4], Native Orchids of Indonesia [5], A to Z of South East Asian Orchid Species [6], Orchids of Sulawesi and Maluku: A Preliminary Catalogue [7], Orchid of Sulawesi [8], and An Alphabetical List of Indonesian Orchid Cultivated in Bogor Botanic Garden [9], were used for orchid identification. Besides books, several websites i.e. [www.theplantlist.org/](http://www.theplantlist.org/); <http://plants.usda.gov/>; [www.flora.dempstercountry.org/](http://www.flora.dempstercountry.org/); [www.flnativeor-chids.com](http://www.flnativeor-chids.com) were consulted.

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The tools used were a tally sheet, camera, a compass, GPS, tape recorder and a forest map of the study area.

**2.4. Methods**

The research method used in this study involved survey and observation. Stages survey was conducted to identify the exact location of research object. Of the nine villages in the area surrounding the Mallawa resort determined four villages that serve as research objects. The location determination is based on data and survey results stating that the village has a diversity of orchids better than the other villages. Stages of direct observation and inter-views with respondents were conducted to obtain data on the types of orchids are cultivated and how the cultivation techniques done by the community over the years. Each orchid found data taken point coordinates and altitude of growth. Make documentation includes taking pictures of objects (orchid) and identifying the types of orchids concerning the literature/books that have been mentioned earlier.

The data collected was processed tabulations with the descriptive analysis is based on data obtained from interviews and observations in the community.

**3. Result and Discussion**

Based on observations in the villages surrounding Mallawa Re-sort especially Tellumpanuae, Samaenre, Bentenge, and Uludaya, it is known that most people do maintenance orchids that from conservation areas and the surrounding of it. The time to orchid maintenance that has been done by people until ten years. Of the 37 total respondents, 15 of them are citizens Tellumpanuae village, 11 villagers of Samaenre, ten villagers of Bentenge, and one villager Uludaya. That is because of the houses in the village of Tellumpanuae very close to the forest, besides the predominant residents work as farmers who each day pass through forest areas, so you can easily find orchids. The overall numbers of orchids are maintained by the community are 126 individuals belonging to 32 species (Table 1).

Orchid species most widely cultivated Phalaenopsis amabilis commonly called interest mattuju by the local community. Mattuju is a term in the Bugis language because ethnic Buginese dominates the people there. If interpreted in Indonesian mattuju targeted or appropriate means to the destination. People there consider that such interest may create tranquility. The style of beautiful flowers makes eyes always wanted to look at him.

**Table 1:** List of orchids conservation by community local in the around of Bantimurung Bulusaraung National Park

No	Genus	Species	Indonesian Name
1	<i>Abdominea</i>	<i>Abdominea minimiflora</i>	-
2	<i>Aerides</i>	<i>Aerides inflexa</i>	Anggrek lilin
		<i>Aerides</i> sp	-
3	<i>Aporum</i>	<i>Aporum uncatum</i>	-
4	<i>Arundina</i>	<i>Arundina</i> sp	-

No	Genus	Species	Local Name
6	<i>Bulbophyllum</i>	<i>Bulbophyllum</i> sp	-
7	<i>Calanthe</i>	<i>Calanthe triplicata</i>	-
8	<i>Coelogyne</i>	<i>Coelogyne</i> sp	Anggrek kalung
9	<i>Cymbidium</i>	<i>Cymbidium finlaysonianum</i>	-
		<i>Cymbidium</i> sp	-
10	<i>Dendrobium</i>	<i>Dendrobium anosmum</i>	-
		<i>Dendrobium crumenatum</i>	-
		<i>Dendrobium phalaenopsis</i>	Anggrek larat
		<i>Dendrobium</i> sp.1	-
		<i>Dendrobium</i> sp.2	-
11	<i>Eria</i>	<i>Eria</i> sp	-
12	<i>Flickingeria</i>	<i>Flickingeria</i> sp	-
13	<i>Hebenaria</i>	<i>Hebenaria radiata</i>	Anggrek bangau
14	<i>Liparis</i>	<i>Liparis</i> sp	-
15	<i>Luisia</i>	<i>Luisia</i> sp	-
16	<i>Oncidium</i>	<i>Oncidium millennium</i>	-
		<i>Oncidium</i> sp	-
17	<i>Phalaenopsis</i>	<i>Phalaenopsis amabilis</i>	Bunga mattuju
18	<i>Pholidata</i>	<i>Pholidata</i> sp	-
19	<i>Phaius</i>	<i>Phaius</i> sp	-
20	<i>Pomatocalpa</i>	<i>Pomatocalpa</i> sp	-
21	<i>Spathoglottis</i>	<i>Spathoglottis plicata</i>	Antel-antelan
		<i>Spathoglottis</i> sp	-
22	<i>Vandopsis</i>	<i>Vandopsis lissochiloides</i>	-
23	-	Spesies 1	-
24	-	Spesies 2	-

Table 1 shows that orchids in the study area are found as many as 32 species belonging to 22 genera, but the two types that have not been identified, it is because of these types do not have generative organs, so it's hard to identify. According to [10], that the observations could only be made from a picture if there were no regenerative organs, due to the location of the orchids on the host trees, they were difficult to reach, so that identifying methods for plants is through observation to characterization of the plant's morphology such as shape, size, number of organs, and other characteristics like colour, aroma and taste of leaf, stem, and branch, with thorns, other accessories, fruit and seed.

Among the 32 species of orchid, *Phalaenopsis amabilis* is a species that can adapt almost all types of growing media as well as *Dendrobium* sp, but the type of orchid that can adapt to all types of container planting i.e. tree, hanging and pots is *Anosmum* sp., *Dendrobium* sp. and *Phalaenopsis amabilis*. While the types of orchids that can be grown in places shade, and to semi-open shade are *Dendrobium* *Phalaenopsis*, *Dendrobium anosmum*, *Dendrobium* sp., *Flickingeria* sp, and *Phalaenopsis amabilis*. Of the three parameters can be seen that the *Phalaenopsis amabilis* is a species of orchid that is superior in adjusting to various conditions. In theory [11], stating that the *Phalaenopsis amabilis* can be grown in warm regions with temperatures at night 19-21°C and 28-31°C

during the day at an altitude of 400-1300 meters above sea level.

The types of orchids are found in existing research sites that have grown nature and the same type of growth. There are three kinds of growth orchids of characteristics i.e. epiphytic, terrestrial and lithofit, and the most dominant are the kind of epiphytic orchids. As for the type of growth, sympodial type more dominating than monopodial.

Based on observations and interviews with respondents, it is known that most people do maintenance orchids with using growing media like coconut fiber, charcoal, ferns and bricks, and with various types of container planting. Also, there is also a combination of other media mixed coconut husk brick, brick mixed with charcoal and sawdust mixed with ferns. Based on interviews, it was known that most people use coconut husks for readily available, economical and how to use them is not difficult, so the potential to be used as an alter-native to orchid growing media. In contrast with charcoal, ferns and bricks are hard to detect. [12], explains that the ad-vantages of coconut fiber growing media that can withstand water content and fertilizer chemical elements and neutralize the acid levels. Furthermore, [13] explains that orchids can adapt to any media, is important adequate watering and ferti-lizing appropriately for each type. In an area that a lot of rain with high humidity, the use of media that can store water is not recommended because the media will always wet and can cause rot the roots.

According to the interview, the community around Mallawa resort obtains orchids from the forest nearby, where orchids usually grow on the stem/branch. The plants, which have been achieved from the forest, usually have conditions begin to wilt or its organs are stressed, so the first stored in a damp place, for example near a water bath so that the back of fresh orchids and can be grown well. After a few days that the orchids have been transferred into pots usually doused with water mixed vetzin (flavor to food) or rice water, because these two components can make orchids thrive.

According to [14], rice water can be used as additional nutrients for the orchid because it contains a variety of nutrients needed by orchids. Rice water has a milky white color. It means that protein and vitamin B1 which there are many in Rice also eroded. Indirectly many protein and vitamin B1 con-tained in rice water. Vitamin B1 is a vitamin B group, which has a role in plant metabolism in converting carbohydrates in-to energy to drive activity in the plant.

#### 4. Conclusion

People around the resort Mallawa using coconut fiber growing media, then planting containers such as flower pots and most orchids are cultivated in a shaded place. Maintenance has been done until ten years. The orchids are usually obtained from the forest. Orchids have been achieved indirectly planted because the plants begin to wilt, so first placed in moist areas, such as near a water bath so that the orchids can be grown in a fresh state.

#### 5. Acknowledgement

The authors thank the head of Bantimurung Bulusaraung National Park office and his staff have been given permission and provide facilities, information, and relevant literature for the study. And than you very much for Laely Damayanti, S.Si.

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St. Fatmah Hiola<fatmah.hiola@unm.ac.id>

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**Re:IJSR Initial Manuscript Submission:SR22130101518**

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Dear Editor,

Thank you very much.

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Authors





St. Fatmah Hiola<fatmah.hiola@unm.ac.id>

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## Review Result for SR22130101518

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Siti Fatmah Hiola, Gufran Darma Dirawan, Muhammad Wiharto

Universitas Negeri Makassar, Makassar, Indonesia

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## 1. Background

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The research method used in this study involved survey and observation. Stages survey was conducted to identify the exact location of research object. Of the nine villages in the area surrounding the Mallawa resort determined four villages that serve as research objects. The location determination is based on data and survey results stating that the village has a diversity of orchids better than the other villages. Stages of direct observation and inter-views with respondents were conducted to obtain data on the types of orchids are cultivated and how the cultivation techniques done by the community over the years. Each orchid found data taken point coordinates and altitude of growth. Make documentation includes taking pictures of objects (orchid) and identifying the types of orchids concerning the literature/books that have been mentioned earlier.

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3	<i>Aporum</i>	<i>Aporum uncatum</i>	-
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8	<i>Coelogyne</i>	<i>Coelogyne</i> sp	Anggrek kalung
9	<i>Cymbidium</i>	<i>Cymbidium finlaysonianum</i>	-
		<i>Cymbidium</i> sp	-
10	<i>Dendrobium</i>	<i>Dendrobium anosmum</i>	-
		<i>Dendrobium crumenatum</i>	-
		<i>Dendrobium phalaenopsis</i>	Anggrek larat
		<i>Dendrobium</i> sp.1	-
		<i>Dendrobium</i> sp.2	-
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12	<i>Flickingeria</i>	<i>Flickingeria</i> sp	-
13	<i>Hebenaria</i>	<i>Hebenaria radiata</i>	Anggrek bangau
14	<i>Liparis</i>	<i>Liparis</i> sp	-
15	<i>Luisia</i>	<i>Luisia</i> sp	-
16	<i>Oncidium</i>	<i>Oncidium millennium</i>	-
		<i>Oncidium</i> sp	-
17	<i>Phalaenopsis</i>	<i>Phalaenopsis amabilis</i>	Bunga mattuju
18	<i>Pholidata</i>	<i>Pholidata</i> sp	-
19	<i>Phaius</i>	<i>Phaius</i> sp	-
20	<i>Pomatocalpa</i>	<i>Pomatocalpa</i> sp	-
21	<i>Spathoglottis</i>	<i>Spathoglottis plicata</i>	Antel-antelan
		<i>Spathoglottis</i> sp	-
22	<i>Vandopsis</i>	<i>Vandopsis lissochiloides</i>	-
23	-	Spesies 1	-
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#### 5. Acknowledgement

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St. Fatmah Hiola<fatmah.hiola@unm.ac.id>

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<b>Paper Title</b>	Orchids Conservation by Community in Round Mallawa Resort Areas at Bantimurung Bulusaraung National Park, South Sulawesi
<b>Author Names</b>	Siti Fatmah Hiola, Gufran Darma Dirawan, Muhammad Wiharto
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<b>Email</b>	<a href="mailto:fatmah.hiola@unm.ac.id">fatmah.hiola@unm.ac.id</a>
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# Orchids Conservation by Community in Round Mallawa Resort Areas at Bantimurung Bulusaraung National Park, South Sulawesi, Indonesia

Siti Fatmah Hiola, Gufran Darma Dirawan, Muhammad Wiharto

Universitas Negeri Makassar, Makassar, Indonesia

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## 1. Introduction

Germplasm conservation of orchids is crucial to do given the magnitude of the loss rate of orchid species in the forest as a result of the many enthusiasts of orchid species in the market because of the uniqueness and authenticity, so a lot of looting orchid species to meet the needs of the market as well as the further degradation of the forest ecosystem either as a result of human activities or natural events. Germplasm conservation of orchids also aims to safeguard the existence of germplasm orchids and provide genetic resources extensively as base material activity of plant breeding, of germplasm that breeders of orchids can get a genotype is desirable, therefore that germplasm collection is useful breeding, then the characterization data and data evaluation should be available [1].

One of the conservation efforts that need to be protected biodiversity Bantimurung Bulusaraung the National Park which has the genetic diversity of wild orchids are quite a lot, so it needs to be done to protect the conservation of natural resources is so valuable that can increase the potential for germplasm as an ornamental plant for the long term. At this time recognized orchid plants have significant economic value, causing the high public interest to do maintenance orchid plants as ornamental flowers that are in the area.

It did not escape the attention of citizens around the national parks, mainly in the area around the Mallawa resort. A brief look at several houses some orchids grow well maintained. Based on observations that have been made known to the majority of orchids are from in and around the national park area. It has attracted the interest of researchers to examine further how the orchid development techniques to the communities surrounding the resort Mallawa, Bantimurung-Bulusaraung National Parks. We hope this research can be

the initial data in the development of native orchids in the future

## 2. Method

### 2.1. Type of Research

This kind of research is detailed research to provide a description of how the maintenance of community-based natural orchid in the Mallawa Resort of the Bantimurung-Bulusaraung National Park.

### 2.2. Time and Place

The field research was carried out in June-October 2014. The study was conducted in four villages in Mallawa Resort of the conservation area at Bantimurung-Bulusaraung National Park (119°34'17"–119°55'13" E; 4°42'49"–5°06'42" S), i.e. Tellumpanuae, Bentenge, Uludaya, and Samaenre. The Mallawa Resort is located about 90 km east of Makassar City and 60 km east of Maros City.

### 2.3. Material and Tools

Materials used for this research were orchid plant guidebooks. Several books including Tropical Orchids of Southeast Asia [2], Orchid Species Culture: Dendrobium. [3], Orchids of Java [4], Native Orchids of Indonesia [5], A to Z of South East Asian Orchid Species [6], Orchids of Sulawesi and Maluku: A Preliminary Catalogue [7], Orchid of Sulawesi [8], and An Alphabetical List of Indonesian Orchid Cultivated in Bogor Botanic Garden [9], were used for orchid identification. Besides books, several websites i.e. [www.theplantlist.org](http://www.theplantlist.org); <http://plants.usda.gov>; [www.flora.dempstercountry.org](http://www.flora.dempstercountry.org); [www.flnativeorchids.com](http://www.flnativeorchids.com) were consulted.

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The tools used were a tally sheet, camera, a compass, GPS, tape recorder and a forest map of the study area.

#### 2.4. Methods

The research method used in this study involved survey and observation. Stages survey was conducted to identify the exact location of research object. Of the nine villages in the area surrounding the Mallawa resort determined four villages that serve as research objects. The location determination is based on data and survey results stating that the village has a diversity of orchids better than the other villages. Stages of direct observation and inter-views with respondents were conducted to obtain data on the types of orchids are cultivated and how the cultivation techniques done by the community over the years. Each orchid found data taken point coordinates and altitude of growth. Make documentation includes taking pictures of objects (orchid) and identifying the types of orchids concerning the literature/books that have been mentioned earlier.

The data collected was processed tabulations with the descriptive analysis is based on data obtained from interviews and observations in the community.

### 3. Result and Discussion

Based on observations in the villages surrounding Mallawa Re-sort especially Tellumpanuae, Samaenre, Bentenge, and Uludaya, it is known that most people do maintenance orchids that from conservation areas and the surrounding of it. The time to orchid maintenance that has been done by people until ten years. Of the 37 total respondents, 15 of them are citizens Tellumpanuae village, 11 villagers of Samaenre, ten villagers of Bentenge, and one villager Uludaya. That is because of the houses in the village of Tellumpanuae very close to the forest, besides the predominant residents work as farmers who each day pass through forest areas, so you can easily find orchids. The overall numbers of orchids are maintained by the community are 126 individuals belonging to 32 species (Table 1).

Orchid species most widely cultivated Phalaenopsis amabilis commonly called interest mattuju by the local community. Mattuju is a term in the Bugis language because ethnic Buginese dominates the people there. If interpreted in Indonesian mattuju targeted or appropriate means to the destination. People there consider that such interest may create tranquility. The style of beautiful flowers makes eyes always wanted to look at him.

**Table 1:** List of orchids conservation by community local in the around of Bantimurung Bulusaraung National Park

No	Genus	Species	Local Name	Amount
1	<i>Abdominea</i>	<i>Abdominea minimiflora</i>	-	1
2	<i>Aerides</i>	<i>Aerides inflexa</i>	Anggrek lilin	1
		<i>Aerides</i> sp	-	2
3	<i>Aporum</i>	<i>Aporum uncatum</i>	-	6
4	<i>Arundina</i>	<i>Arundina</i> sp	-	1
5	<i>Bromheadia</i>	<i>Bromheadia</i> sp	-	3

No	Genus	Species	Local Name	Amount
6	<i>Bulbophyllum</i>	<i>Bulbophyllum</i> sp	-	1
7	<i>Calanthe</i>	<i>Calanthe triplicata</i>	-	6
8	<i>Coelogyne</i>	<i>Coelogyne</i> sp	Anggrek kalung	2
9	<i>Cymbidium</i>	<i>Cymbidium finlaysonianum</i>	-	1
		<i>Cymbidium</i> sp	-	4
10	<i>Dendrobium</i>	<i>Dendrobium anosmum</i>	-	7
		<i>Dendrobium crumenatum</i>	-	1
		<i>Dendrobium phalaenopsis</i>	Anggrek larat	10
		<i>Dendrobium</i> sp.1	-	1
		<i>Dendrobium</i> sp.2	-	15
11	<i>Eria</i>	<i>Eria</i> sp	-	2
12	<i>Flickingeria</i>	<i>Flickingeria</i> sp	-	5
13	<i>Hebenaria</i>	<i>Hebenaria radiata</i>	Anggrek bangau	1
14	<i>Liparis</i>	<i>Liparis</i> sp	-	1
15	<i>Luisia</i>	<i>Luisia</i> sp	-	1
16	<i>Oncidium</i>	<i>Oncidium millennium</i>	-	1
		<i>Oncidium</i> sp	-	3
17	<i>Phalaenopsis</i>	<i>Phalaenopsis amabilis</i>	Bunga mattuju	38
18	<i>Pholidata</i>	<i>Pholidata</i> sp	-	3
19	<i>Phaius</i>	<i>Phaius</i> sp	-	1
20	<i>Pomatocalpa</i>	<i>Pomatocalpa</i> sp	-	1
21	<i>Spathoglottis</i>	<i>Spathoglottis plicata</i>	Antel-antelan	2
		<i>Spathoglottis</i> sp	-	1
22	<i>Vandopsis</i>	<i>Vandopsis lissochiloides</i>	-	1
23	-	Spesies 1	-	1
24	-	Spesies 2	-	2

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was done by providing a mixture of water vetzin or rice water because these two components can make orchids thrive.

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