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Evaluation of Selected Potential Taro Cultivars under La Trinidad Condition

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ABSTRACT

The study was conducted to evaluate the growth and yield of taro germplasm; assess the pest and disease incidence; to determine the dry matter content and sensory characteristics of the different taro corms evaluated from November 5, 2013 to December 3, 2014 at NPRCRTC experimental area, La Trinidad, Benguet. The trial was laid out following the Randomized Complete block design (RCBD) replicated three times.

Entries BSUT 31, BSUT 02, and BSUT 13 had the highest percent survival (100%) while BSUT 24 had the lowest percent survival (57%). On the plant vigor at 240 dap with four entries having a rating of 5 (highly vigorous) outgrowing the check variety with a rating of 4 (vigorous). Final plant height of the taro entries revealed significance among the entries with entry BSUT 02 significantly outgrowing the check variety BSUT 30 with respective final mean height of 81 cm and 44 cm. Observation on the pest and diseases revealed no significant differences among the entries during the conduct of the study. The heaviest petiole was entry BSUT 02 with a mean weight of 1.433 followed by BSUT 16 (1.400 kg), and BSUT 09 (1.130kg) outranking the check variety BSUT 30 with petiole mean weight of 0.233 kg. Entry BSUT 16 significantly had the highest cormels mean number of 175 with mean weight of 8.23 kg, followed by BSUT 24 and BSUT 31 with respective mean number of 108, 93 and mean weight of 4.70 and 4.35 kg. No significant differences on the taro entries evaluated on the total and computed tons per hectare. Entry BSUT 04 gave the highest mean dry matter content of 42% followed by entry BSUT 09,

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and BSUT 32 with mean dry matter content of 41 and 40 respectively. Results showed that among the fourteen taro entries evaluated 8 entries had a rating of 6 (acceptable) which is significantly comparable with the check variety BSUT 30 with rating of 7 (highly acceptable). Entry BSUT 16 was rated 3 (slightly unacceptable), this could attributed by its itchiness.

Based on the result ten (10) entries was selected based on their yield, resistance to pest and diseases, dry matter content, and with good eating quality. These entries will be further evaluated under farmer's field.

Key word: taro, germplasm, incidence, characteristics, entries

Introduction

Taros are grown, mostly as a staple or subsistence crop, throughout the tropics, subtropics, and in many warmer regions of the temperate zone. In the Philippines there are two main production systems the dry land/upland which used in most subsistence production and the wetland/lowland which is usually applied in restricted to certain regions, and are usually operated on a commercial or semi-commercial basis. Yields generally low throughout the country, usually averaging less than 5 tones/ha.

A part from China, the Philippines has the largest area devoted to taro in Asia proper. According to FAO, 1997 there are about 34,000 hectares of land devoted to taro in 1996 producing about 117,000 tones. Taro require hot humid conditions, with daily average temperatures of 21-27°C and an annual rainfall of approximately 250 cm is considered satisfactory; they can be grown in upland areas where the rainfall is about 175 cm provided this is evenly distributed throughout the growing period. Taro are grown on a wide range of soil

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types, but the best results are obtained on deep, well-drained, friable loams, particularly alluvial loams, with a high water-table; a pH of 5.5-6.5 is reported to be best.

Taro (Colocacia esculenta) or 'gabi' has been grown as a food supplement to sweetpotato. Production of taro is becoming equally important especially in Benguet and in Mountain Province. The leaves, petioles, corms and young shoots of the taro plant are all utilized as food or as feeds. Taro leaves are rich in vitamins and minerals. They are a good source of thiamin, riboflavin, iron, phosphorus, and zinc, and a very good source of vitamin B6, vitamin C, niacin, potassium, copper, and manganese.

Taro corms are very high in starch, and are a good source of dietary fiber (Yasmenko, 2010). Highland farmers usually use local cultivars which are either low yielders or susceptible to pest and diseases. There is then a great need to evaluate and select cultivars with high yield, resistance to pest and diseases and with good eating quality.

Objectives:

1. to evaluate the growth and yield of taro germplasm;
2. to assist the pest and disease incidence; and
3. to determine the dry matter content and sensory characteristics of the different taro corms evaluated.

Reviews of Literature:

According to Singh et. al. (2001), taro (*Colocasia esculenta*) is one of the major root crops in the Pacific Islands and is an important source of food and income. Corms are high in

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carbohydrates and the leaves are an excellent source of vitamins. Similarly, Tanso (2001), reported that taro ranks fourtheenth among staple vegetable crops of the world, with about 9.2 million tones produced globally from 1.8 million hectares with an average yield of 5.1 t ha^{-1}.

Justo (2012) stated that taro is very important and significant in the life and culture of the highlanders not only as one of their staple food but also indispensable part in the performance of sacred activities of the "mambunong" called rituals. Such ceremonies are done in any household in the highland depending upon the belief of the community.

Generally taro is considered as staple food in this part of the country, it can be prepared as snack item and used as an ingredient in some recipes depending on the occasion, need of consumers, and availability. As a vegetable, practically all parts from the corms, and cormels to the petioles and leaves are prepared as viand (Shog-oy, et. al., 2002).

As cited by Gayao and Sim (1992), the yield of taro in the Philippines is 3.2 t ha^{-1} compared to the 21.6 t ha^{-1} taro yield in Hawaii. Likewise Singh et. al. 2001 pointed out that, although taro is second most important root crop staple in Papua New Guinea after sweetpotato but fewer cultivars and their wild relatives are present now probably due to major changes in the farming system and dietary habits.

Methodology:

Fourteen taro entries selected from the preliminary yield trial were evaluated at La Trinidad, Benguet from November 5, 2013 to December 3, 2014. Experiment was laid out following the Randomized Complete Block design (RCBD) replicated three times with twenty taro corms per replication.

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Apical portion of the main corm or cormels cut just below the base of the leaf stalk plus 15-20 cm of the lower petioles of the plant was done in all the entries ready for planting. Plots of .75 x 10 were prepared and 10 kg plot^{-1} of processed chicken manure were basally applied prior to planting. Each entry was planted in single row with a distance of 40 cm between hills and 50 cm between plots. All other cultural management was employed as needed.

At harvest four to five corms were taken for dry matter content and sensory characteristics evaluation at the postharvest and processing laboratory.

Data gathered were:

1. Plant survival (%). This was taken one month after planting using the following formula:

$$\% \text{ Survival} = \frac{\text{Number of plants survived}}{\text{Total number of plants planted}} \times 100$$

2. Plant vigor. This was taken at 60 and 140 days after planting (DAP) using the rating scale as follows:

Scale	Description
5	Highly vigorous (plants were strong with robust stems and leaves was light to dark green in color)
4	Vigorous (plants were moderately strong with robust leaves were light green to green in color)
3	Moderately vigorous (better than less vigorous)
2	Less vigorous (plants are weak with few thin stems and leaves were pale.
0	Poor (plants are weak with few stems and leaves were pale)

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3. Incidence of pest and diseases. Incidence of insect pests and diseases was rated using the following scale:

A. Leaf blight *(Phytopthora colocasieae and Collectotichrum spp)*

Rating	Description	Remarks
1	no infection	highly resistant
2	scattered spots covering 1-10% leaf surface	resistant
3	scattered spots covering 11 – 20 leaf surface	moderately resistant
4	scattered spots covering 21-25% leaf area	slightly resistant
5	scattered spots covering 50 % Leaf area	moderately susceptible
6	heavy spotting covering 51-70% Leaf area	slightly susceptible
7	very heavy spotting covering 71-90% leaf area	susceptible
8	few green leafs visible	very susceptible
9	plants dead all leaves turned Brown	highly susceptible

B. Thrips

Ratings	Description

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1	no damage
2	few nyphs & adult
3	many nyphs & adults
5	few colonies
7	many colonies but can be distinguished for one another
9	colonies cannot be distinguished

8 Final height of the petiole. At maturity, the height of the petiole was determined by selecting 10 sample plants at random per plot and measured from the base to the tip of the plant.

9 Yield. Yield and yield parameters were:

a. Number and weight of petioles per plot

b. Number and weight of corms per plot

c. Number and weight of cormels per plot

10 Dry matter content (DMC). This quality was determined by using thinly sliced corms as samples, which were oven-dried at 80 ^{o}C for 48 hours. The DMC was computed using the following formula:

$$\text{Moisture Content (\%)} = \frac{\text{Fresh weight} - \text{Oven Weight}}{\text{Fresh Weight}}$$

$$\text{Dry Matter Content (\%)} = 100 - \text{Moisture Content}$$

11. Sensory characteristics. This was determined by boiling two to three corms. Cooked corms were peeled and sliced into small cubes in place in a plate with designated codes. Sensory

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evaluation was done by 10 trained panelists using the following parameters with the given rating scale:

Appearance, color, aroma, taste

Scale	Description
5	like very much
4	like slightly
3	neither like nor dislike
2	dislike slightly
1	dislike very much

Itchiness

Scale	Description
5	not itchy
4	slightly itchy
3	neither itchy nor not itchy
2	itchy
1	very itchy

General Acceptability

Scale	Description
7	Highly acceptable
6	acceptable
5	slightly acceptable
4	neither acceptable nor unacceptable
3	slightly unacceptable

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2	unacceptable
1	very unacceptable

Results and Discussion:

Plant survival

Data regarding the plant survival, vigor and final height of the different taro entries were shown in Table 1. Based on statistical analysis, significant differences existed among the entries evaluated except on the plant vigor at 120 days after planting (DAP).

Entry BSUT 31, BSUT 02, and BSUT 13 followed BSUT 05, BSUT 32, BSUT 12, BSUT 28 and BSUT 17 significantly outgrown the check variety BSUT 30 with identical mean of 100 and 98 percent respectively. The plant survival of the rest ranges from 57 to 90 % which were either comparable or least significant with the check variety BSUT 30.

Plant Vigor

Result showed no significant differences on the plant vigor of the potential taro entries at 120 while significant differences revealed at 140 days after planting (DAP) (Table 1). Entry BSUT 32, BSUT 16, BSUT 17, BSUT 24 and BSUT 09 significantly had highly vigorous growth (5) stand at 240 DAP outgrowing the check variety BSUT 30 with a rating of 4 (vigorous). Entry BSUT 14 had the least plant vigor rating of 3 (moderately vigorous).

Plant height

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Significant differences among entries were observed along the final height. Entry BSUT 02 had the highest plant height of 81 cm followed by entry BSUT 41 (74cm) and BSUT 16 (73cm) significantly outgrowing the check variety BSUT 30 cm with mean height of 44 cm.

Table 1. Plant survival, Vigor at 60 and 140 DAP, and height of 19 taro entries

ENTRIES	SURVIVAL	PLANT VIGOR		FINAL HEIGHT
	(%)	120 DAP	140 DAP	(CM)
BSUT 01	90	4	4	56
BSUT05	98	4	4	58
BSUT 31	100	5	4	51
BSUT 32	98	3	5	65
BSUT 12	98	5	4	66
BSUT 28	98	5	4	69
BSUT 02	100	4	4	81
BSUT 16	78	5	5	73
BSUT 17	98	3	5	63
BSUT 24	57	4	5	74
BSUT 13	100	5	4	54
BSUT 14	90	4	3	48
BSUT 30 (C.V.)	67	4	4	44
BSUT 9	87	5	5	68
LSD (0.05)	18.80	ns	1.11*	11.34**
CV %	14.77	16.3	14.5	10.8

Plant vigor rating scale:

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Scale	Description
5	Highly vigorous (plants were strong with robust stems and leaves was light to dark green in color
4	Moderately vigorous (plants were moderately strong with robust leaves were light green to green in color)
3	Vigorous (better than less vigorous)
2	Less vigorous (plants are weak with few thin stems and leaves were pale.
1	Poor (plants are weak with few stems and leaves w

Taro leaf blight and Anthracnose (Phytopthora colocasiae and *Colletotrichum spp*)

Two major disease of taro were observed during the conduct of the trial: leaf blights caused by *Phytophthora* and *Colletotrichum spp.* (Table 2.). No significant differences were observed among the taro entries on the diseases evaluated.

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Table 2. Leaf blight and Anthracnose (Phytopthora colocasiae and *Colletotrichum spp*) severity rating using CIP scale

ENTRIES	DISEASE SEVERITY RATING	
	Late Blight	Anthracnose
BSUT 01	2	4
BSUT 05	1	4
BSUT 31	1	4
BSUT 32	2	4
BSUT 12	2	4
BSUT 28	2	3
BSUT 02	3	4
BSUT 16	2	4
BSUT 17	1	4
BSUT 24	2	4
BSUT 13	2	4
BSUT 14	2	4
BSUT 30 (check variety)	1	4
BSUT 09	3	4
LSD (.05)	ns	ns
CV (%)	25.54	13.46

CIP rating scale:

Scale	% leaf area infected	Description
1	0	no infection

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2	3	> 1% but < 10%
3	10	11-20 small lessions
4	25	10 % leaf area infected
5	50	25 % leaf area infected
6	75	50% leaf area infected
7	90	75% leaf area infected
8	97	only few green areas left (much less than 10%)
9	100	foliage completely destroyed/dead

Pest Severity ratings

During the trial, the pest incidence was gathered in the dry season. Thrips was the only major insect pest identified attacking the plants Table 3). Results showed no significant difference among the taro entries on the Aphids incidence., spider miter mites, and hornworm infestation.

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Table 3. Final pest severity rating using CIP scale

ENTRIES	PEST SEVERITY RATING
	Thrips
BSUT 01	2
BSUT 05	2
BSUT 31	2
BSUT 32	3
BSUT 12	3
BSUT 28	2
BSUT 02	3
BSUT 16	2
BSUT 17	2
BSUT 24	2
BSUT 13	2
BSUT 14	3
BSUT 30 (check variety)	2
BSUT 09	3
LSD (.05)	ns
CV (%)	23.29

Rating scale:

0 – no damage
1 – few nyphs & adult
3 – many nyphs & adults
5 – few colonies
7 – many colonies but can be distinguished for one another
9 – colonies cannot be distinguished

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Number and weight of petiole

No significant differences were observed on the number of petiole while significant differences were noted on the weight of petiole on the different entries evaluated under La Trinidad condition (Table 4).

Entry BSUT 03 had the highest petioles mean weight 0f 1.433 kg followed by entry BSUT 16 (1.400 kg), BSUT 09 (1.130 kg), and BSUT 41 (0.917 kg) significantly outranking the check variety BSUT 30 with mean petiole weight of 0.233 kg.

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Table 4. Number and weight (kg) of petioles of 14 Taro entries grown at La Trinidad, Benguet

ENTRIES	PETIOLE	
	Number	Weight (kg)
BSUT 01	8	0.633
BSUT 05	8	0.350
BSUT 31	10	0.567
BSUT 32	9	0.633
BSUT 12	6	0.500
BSUT 28	7	0.567
BSUT 02	8	1.433
BSUT 16	7	1.400
BSUT 17	9	0.700
BSUT 24	9	0.917
BSUT 13	9	0.667
BSUT 14	5	0.327
BSUT 30 (check variety)	12	0.233
BSUT 09	15	1.130
LSD (0.05)	ns	0.254**
CV %	19.7	14

Number and weight of corms

Results showed no significant variation among the taro entries on the number and weight of corms (Table 5).

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Number and weight of cormels

Table 5 shows significant differences among the entries on the number and weight of cormels evaluated at La Trinidad.

Entry BSUT 16 had the highest mean number of 175 cormels with mean weight of 8.23 kg followed by BSUT 41 with mean cormels number of 108 and mean weight of 4.70 kg and BSUT 31 with mean number of 93 and mean weight of 4.35 kg significantly outranking the check variety BSUT 30 with mean cormels of 19 and mean weight of 0.900 kg.

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Table 5. Number and weight of corms and cormels of 14 Taro entries grown at La Trinidad, Benguet

ENTRIES	CORMS		CORMELS	
	Number	Weight (kg)	Number	Weight (kg)
BSUT 01	9	2.02	55	3.72
BSUT 05	6	1.01	40	1.78
BSUT 31	7	2.02	93	4.35
BSUT 32	5	1.01	51	3.57
BSUT 12	5	2.02	41	2.75
BSUT 28	5	2.02	83	3.57
BSUT 02	6	3.03	28	2.57
BSUT 16	6	2.01	175	8.23
BSUT 17	8	2.02	48	2.40
BSUT 24	6	2.02	108	4.70
BSUT 13	7	3.03	30	3.87
BSUT 14	6	2.02	38	1.83
BSUT 30 (check variety)	5	2.02	19	0.90
BSUT 09	10	3.03	22	1.47
LSD (.05)	Ns	Ns	2.49**	0.61**
CV (%)	30.2	16.3	20.4	19.4

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Total marketable yield plot^{-1} and Computed yield T ha^{-1}

Results showed no significant differences among the taro entries evaluated on the total marketable yield per plot and computed yield tons per hectare (Table 6).

Dry Matter Content (%)

Dry matter content of the different entries differed significantly (Table 6). Entry BSUT 17 had the highest mean dry matter content of 42 % followed by BSUT 09 and BSUT 32 with mean DMC of 41 and 40 percent respectively significantly outranking the check variety BSUT 30 with mean dry matter content of 30 %.

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Table 6. Yield and dry matter content (%) of 14 Taro entries grown at La Trinidad, Benguet

ENTRIES	YIELD		DMC (%)
	Total (kg/plot)	Computed (tons/ha)	
BSUT 01	214.	2.57	32
BSUT 05	1.75	2.10	36
BSUT 31	2.06	2.47	31
BSUT 32	2.22	2.67	40
BSUT 12	1.65	1.98	30
BSUT 28	1.74	2.08	29
BSUT 02	2.03	2.43	33
BSUT 16	2.07	2.48	27
BSUT 17	1.48	1.78	42
BSUT 24	1.88	2.84	31
BSUT 13	1.81	2.40	34
BSUT 14	1.19	1.43	37
BSUT 30 (check variety)	1.75	2.10	33
BSUT 09	2.03	2.43	41
LSD (0.05)	Ns	ns	4.41**
CV %	17.4	16.7	7.7

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Sensory Characteristics of 14 Taro Entries

Results showed that almost all the entry differed significantly to neither like nor dislike (3), like slightly (4) and like very much (5) in terms of appearance, color, flavor and taste. Only entry BSUT 31 had a rating of 3 on appearance which is neither like nor dislike. In terms of color entry BSUT 32 revealed the lowest rating of 3 (neither like nor dislike) all the rest significantly had 4 (like slightly) to 5 (like very much). On Flavor, all the entry significantly had a ratings ranging from 4 (like slightly) to 5 (like very much) as compared to the check variety BSUT 30 revealing the least flavor rating of 3 (neither like nor dislike). Most of the entry had slightly like (4) taste which is significantly comparable with the check variety BSUT 30 with mean rating taste of 5 (like very much). On itchiness, entry BSUT 32, BSUT 02, and BSUT 09 were significantly comparable with the check variety BSUT 30 with same ratings of 5 (not itchy) while entry BSUT 16 was very itchy (1).

The general acceptability revealed that entry BSUT 01, BSUT 05, BSUT 32, BSUT 12, BSUT 02, BSUT 14, BSUT 13 and BSUT 09 had the same ratings of 6 (acceptable) which could be comparable with the check variety BSUT 30 with a mean general acceptability rating of 7 (highly acceptable).

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Table 7. Sensory evaluation of 14 Taro entries grown at La Trinidad, Benguet

ENTRIES	SENSORY RATINGS					
	Appearance	Color	Itchiness	Flavor	Taste	G. A.
G	4	5	4	4	4	6
Q	4	4	3	5	4	6
N	3	4	4	5	3	4
K	4	3	5	5	4	6
P	4	4	4	5	4	6
T	4	4	4	5	4	5
O	4	5	5	5	4	6
S	5	5	1	5	3	3
R	4	4	4	5	4	5
B	4	4	4	5	4	5
13	4	4	4	4	4	6
U	4	4	4	5	4	6
C	5	5	5	3	5	7
M	5	4	5	5	4	6
LSD (0.05)	0.56	0.62	0.70	0.66	0.58	1.0
CV %	18.0	19.7	23.0	22.4	20.9	25.2

Rating Scale:

Appearance, color, aroma, taste

Scale	Description
5	like very much

Itchiness

Scale	Description
5	not itchy

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4	like slightly	4	slightly itchy
3	neither like nor dislike	3	neither itchy nor not itchy
2	dislike slightly	2	itchy
1	dislike very much	1	very itchy

General Acceptability

Scale	Description
7	Highly acceptable
6	acceptable
5	slightly acceptable
4	neither acceptable nor unacceptable
3	slightly unacceptable
2	unacceptable
1	very unacceptable

SUMMARY, CONCLUSION AND RECOMMENDATION

The study was conducted to evaluate the growth and yield of taro germplasm; assess the pest and disease incidence; t determine the dry matter content and sensory characteristics of the different taro corms evaluated from November 5, 2013 to December 3, 2014 at NPRCRTC experimental area, La Trinidad, Benguet. The trial was laid out following the Randomized Complete block (RCBD)replicated three times.

The taro entries were significantly different in terms of plant survival one month after planting. Entries BSUT 31, BSUT 02, and BSUT 13 had the highest percent survival (100%) while BSUT 24 had the lowest percent survival (57%). Significant differences among the taro

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entries were observed on the plant vigor at 240 dap with four entries having a rating of 5 (highly vigorous) outgrowing the check variety with a rating of 4 (vigorous). Final plant height of the taro entries revealed significance among the entries with entry BSUT 02 significantly outgrowing the check variety BSUT 30 with respective final mean height of 81 cm and 44 cm. Observation on the pest and diseases revealed no significant differences among the entries during the conduct of the study.

The heaviest petiole was entry BSUT 02 with a mean weight of 1.433 followed by BSUT 16 (1.400 kg), and BSUT 09 (1.130kg) outranking the check variety BSUT 30 with petiole mean weight of 0.233 kg. No significant variation among the taro entries on the number and weight of corms while significant differences were observed on the number and weight of cormels. Entry BSUT 16 significantly had the highest mean number of 175 with mean weight of 8.23, followed by BSUT 24 and BSUT 31 with respective mean number of 108, 93 and mean weight of 4.70 and 4.35 kg.

Result on the total and computed tons per hectare showed no significant differences on the taro entries evaluated. On the dry matter content entry BSUT 04 gave the highest mean dry matter content of 42% followed by entry BSUT 09, and BSUT 32 with mean dry matter content of 41 and 40 respectively.

The acceptability was based on the appearance, color, itchiness, flavor and taste. Results showed that among the fourteen taro entries evaluated 8 entries had a rating of 6 (acceptable) which is significantly comparable with the check variety BSUT 30 with rating of 7 (highly acceptable). Entry BSUT 16 was rated 3 (slightly unacceptable), this is maybe of its itchiness.

Base on the result ten (10) entries was selected based on their yield, resistance to pest and diseases, dry matter content, and with good eating quality. These entries will be further

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evaluated under farmer's field. Hence, According to Rasco and Amante (1994), varietal evaluation is ultimately measured in terms of the variety that has passed the evaluation process by the end users. Likewise, in 1990,Sunil reported that varietal evaluation is a process in plant breeding, which provides comparison and promising clones developed by breeder. Selecting the right variety will minimize problems associated with water and fertilizer, resistance to pests and early maturity. With the right variety, production would entail less expenses hence ensure more profit.

REVIEW OF LITERATURE

FAO. 1997. Peculiarities of Taro Production in Specific Asia-Pacific Countries. Corporate Document Repository. Taro cultivation in Asia and the Pacific Region. Regional Office for Asia. PDF version. Access at **www.**fao.org/**docrep/005/AC450E/ac450e08.htm** on July 8, 2013.

SIM, J. M. and B. T. GAYAO. 1991-1992. Socio-economic Importance of Taro in Benguet and Nearby Areas. Research Results Presented in a Series of Working Papers. 2:23. P 106.

SINGH, D., T. OKPUL, M. TAYLOR AND D. HUNTER. 2001. Taro seed storage and germination protocols used by the PNG breeding programme. Paper presented at the TaroGen Conservation Strategy meeting, SPC, Suva, Fiji, September, 2001.

SHOG-0Y, G. P., G. A. TIANZA, AND I. C. GOZALES. Evaluation of Taro (*Colocasia Esculenta*) Entries Under La Trinidad Condition. BSU Research Journal No. 27. A Journal of Technical Researches Published by the Benguet State University, La Trinidad, Benguet, Philippines. Pp 7-18.

ISSN 2278-7763

SUNIL, K. R. 1990. Varietal evaluation of promising lines of path coefficient analysis in pole snap bean. MS Thesis. Benguet State University, La Trinidad Benguet. Pp. 4-5.

YASMENKO, V. 2010. Taro Nutrients and Health Benefits. Access at **genuineaid.com**/2010/05/10/**taro-nutrients-health-benefits** on July 8, 2013.

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