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Characterization Of Chirimoya Ecotypes (Annona Cherimole Mill) With Commercial Aptitudes In The District Of Acobamba

Efraín David Esteban. Nolberto[1], Guillermo Gomer Cotrina Cabello[2], Benito Filemón Buendía Quispe[3], Jorge Luis De La Cruz Saravia[4], Jorge Arturo De La Cruz Martínez[5], Jorge Luis De La Cruz Martínez[6], Janet Natalia Mendoza Rejas[7], Ulises Peña Carmelo[8], Zenón Manuel López Robles[9], Carlos Jesús Yupanqui Villanueva[10], María Soledad Aliaga Huamán[11], Carlos Bruno Odar Aquije[12], Nelly Rosario Aquije Muñoz[13]

Abstract

The put a title to work Caracterización of ecotipos of cherimoya fruit (Annona cherimola Mill) with trade abilities at Acobamba's district; Located at Acobamba's and Región Huancavelica's Province, the objective had to determine the ecotipos of cherimoya fruit (Annona cherimola Mill) with trade abilities at Acobamba's District – Huancavelica The Kind Of investigation and level was applied and descriptive, where the population was composed of the cherimoya fruit plants and the sign was composed of all of the ecotipos of cherimoya fruit recollected at Llacce's, Casavi's, Santaola's, Huancas's and Ccarhuacc's localities of Acobamba's district; Where collected him 03 ecotipos of cherimoya fruit In existent situ of 07 at the zone to present similar characteristics to the ecotipo, Cumbe, evaluándose the external characteristics (the fruit's Form of the fruit, color of the exocarpo, type of the exocarpo, size and weight) and internal characteristics (Color of the pulp; Grades Brix, pH, Oxidación of the pulp, Número of seeds for fruit and Relación pulp seed) of the cherimoya fruit fruits. Of whom 03 ecotipos to present external characteristics and intern similar selected to the ecotipo Cumbe; That they found their place at the following localities: Illacce, Huancas and Ccarhuacc an ecotipo for locality correspondingly; The best ecotipos went:

Keywords: *Characterization, ecotipos, cherimoya fruit and trade ability.*

[1] Universidad Nacional de Huancavelica,efrain.esteban@unh@.edu.pe Orcid:0000-0003-3426-2255, gcotrinac@undac.edu.pe, Orcid:0000-0003-2367-22408
[2] Universidad Nacional Daniel Alcides Carrión de Cerro de Pasco
[3] Universidad Nacional Daniel Alcides Carrión de Cerro de Pasco, Orcid:0000-0002-2921-6847,bbuendiaq@undac.edu.pe.
[4] Universidad Nacional San Luis Gonzaga de Ica jorge.delacruz1@unica.edu.pe, Orcid:0000-0002-3973-339
[5] Universidad Autónoma de Ica, Orcid.org/0000-0002-0087-5654, delacruzjorge52@gmail.com
[6] Universidad Nacional San Luis Gonzaga de Ica, Jorge.delacruz3@unica.edu.pe, Orcid: ORCID 0000-0001-6703-3681
[7] Universidad Nacional San Luis Gonzaga, Ica, Perú Orcid.0000-0002-1059-7280,janet.mendoza@unica.edu.pe
[8] Universidad Nacional Daniel Alcides Carrion de Cerro de Pasco, upenac@undac.edu.pe, Orcid:0000-0002-8625-5850
[9] Universidad Peruana Los Andes, orcid.org/0000-0003-0744-6075,d.zlopez@upla.edu.pe
[10] Universidad Nacional Daniel Alcides Carrión de Cerro de Pasco, cyupanquiv@undac.edu.pe, Orcid 0000 - 0002 - 8982 – 6858
[11] Universidad Nacional Daniel Alcides Carrión de Cerro de Pasco, aliagahu@gmail.com , ORCID 0009-0005-0885-8989
[12] Universidad Nacional Daniel Alcides Carrión de Cerro de Pasco, codaraquije@hotmail.com, Orcid 0000-0001-8025-7508
[13] Universidad Nacional "San Luis Gonzaga " de Ica, rosario.aquije@unica.edu.pe

Introduction

The Cherimoya Fruit (Annona cherimola Mill.) It is from the subtropical slopes of the inter-Andean valleys comprised between Colombia, Ecuador, Peru and Bolivia. Projecting out is room for that this fruit is of level global unimportance, in Peru the principal productive cherimoya fruit regions are: File, Cajamarca, Piura, Junín and Apurímac.

In Huancavelica, the cherimoya fruit is not cultivation developed on a large scale, only it is cultivated for self-consumption and the found ecotipos, .la are not much of a majority of these plantations basses in performances have originated for natural propagation thanks to the environmental favorable conditions, as a consequence, when his production have not had an agronomic handling music themselves. This is due to the scarce knowledge of ecotipos's diversity, it makes producers do not contribute to the correct development of this cultivation. It is precise to accomplish an identification and best ecotipos's characterization with potentially commercial qualifications at Acobamba's Province for it.

The realized research work will offer the producers of cherimoya fruit information on the local ecotipos with a great potential of productivity and approval on the market regional, fulfilling the producer's expectations. Therefore, the formulated problem matched: Which will the characterizations of the ecotipos of cherimoya fruit (Annona cherimola Mill) with trade abilities at Acobamba's District be – Huancavelica?

The general objective was To Determine the ecotipos of cherimoya fruit (Annona cherimola Mill) with trade abilities at Acobamba's District – Huancavelica; And the specific objectives matched: Identifying the characteristics of the fruit of the different ecotipos of cherimoya fruit with trade abilities, and Identifying the characteristics of the tree of the different ecotipos of cherimoya fruit with loud productibility Justificación and importance.

MATERIALS And MÉTHODS

Place of execution

Huancavelica accomplished the present research work herself in the space of the localities of the district and province of Acobamba and region.

Political position

Region: Huancavelica

Province: Acobamba

District : Acobamba

Geographic position

Southern latitude :9 57 ′ 06 “

Length West :76 14 53

Altitude :1918 to 2500 msnm.

Zone of Life: Prickly mountain – Premontano Tropical (mte PT)

Type of Investigation

You are descriptive explanatory the characteristics of the ecotipos of cherimoya fruit that the commercial capabilities at the collecting localities of the fruit of Acobamba's district have were described.

Level of Investigation

The level of investigation is applied - Side Road because in the one that the variables were described once only and one will immediately proceed to his description.

Method of Investigation

The present research work corresponds to the method not experimental descriptive.

Design OF investigation

Experimental no Transeccional Descriptivo. Because will not manipulate him independent variables, they experienced the behavior of the dependent variable, it will be side road because they determined the data in a very moment or only, descriptive time because the dependent variables were described.

O  M

Where:

The m Represents the sign under consideration: Ecotipos of cherimoya fruit.

Or You Represent the independent variable: Trade abilities of cherimoya fruit

Population, SIGN, SAMPLING

Population: You were composed of Llacce's localities, Casavi, Santaola, Huancas and Ccarhuacc of Acobamba's district, Sign: The sign was constituted throughout the ecotipos of cherimoya fruit recollected at Llacce's, Casavi's, Santaola's, Huancas's and Ccarhuacc's localities of Acobamba's district. Sampling: The overtaking of sign they took effect at the localities of study, in such a way all the signs were ready to be characterized.

Characteristics of the tree. The performance, vigor and distribution of the branches of the identified tree got registered. Referential data to be able to have an idea of the production capacity of the identified ecotipos are these.

Characteristics of the fruits. They took two ripe their fruits physiologically of the selected- cherimoya fruit tree for sampling. Them which ones will be characterized of agreement to:

External characteristics of the fruits. This characterization came true in the cabinet, and they took their following data:

Form of the fruit. The codes established in the descriptors determined the following intervening forms themselves: Neighborhood, Flattened, Heart-Shaped

The exocarpo's type. The codes established in the descriptors determined the following intervening forms themselves: Striped mullet, Depresiones soft, Protuberancias little

The exocarpo's color. The codes established in the descriptors determined the following intervening forms themselves: Green, Forest Green, Yellow-Green Color

Length of the fruit (cm). They measured the length of the fruits with help of a vernier and the measurement will be expressed in centimeters.

Diameter of the fruit (cm). They measured themselves in the fruit's broaddest point with the help of a vernier and the measurement was in centimeters.

Weight of the fruit (g). They weighed the fruits in an electronic scales and the measurement will be expressed in grams.

Internal characteristics. These characterizations made at the laboratory, for which the signs of the fruit themselves they were transferred boxed of cardboard, previously registered with the number of accession which the signs of the fruit were belonging to.

Color of the pulp. They determined themselves according to the codes on the color established in the descriptors:

Beige target

Grades Brix. In order to determine the grade Brix of the fruits they utilized a Brixómetro of cherimoya fruit.

PH (Potential of hydrogenions). They determined the grade of acidity of the cherimoya fruit fruits for it a Peachímetro was utilized.

Oxidation of the pulp. They determined the oxidation of the pulp of the cherimoya fruit fruit in three minutes after the cut accomplished to the fruit, for it the following codes were consigned: 0 without oxidation, 1 rusty little

Number of seeds for fruit. It was proceeded to telling the total number of seeds of each evaluated- cherimoya fruit fruit.

Total weight of seeds for fruit (g). They weighed the total number of seeds of the cherimoya fruit fruit in an electronic scales and they expressed the measurement in grams.

Procedure of Collection Of Data

Prospection of the field

The recognition of field at Llacce's 05 localities, Casavi, Santaola, Huancas and Ccarhuacc were accomplished; With the purpose to locate the zones with plantations of cherimoya fruit with the characteristics of the prototype cumbe and in the status of physiological maturity that are found the fruits.

Delimitation of zones

After having gone over the localities, a sketch, the one in which the zones with plantations of cherimoya fruit were located became established ; They utilized the map of Acobamba's district for it.

Ecotipos's identification

The most distinctive ecotipos provided evidence of identity; We deposited his properties with the owner's permission, where they found cherimoya fruit plantations, in the ones that one found fruits with type of the exocarpo smooth, soft depressions, little protuberances, medium protuberances in and with long protuberances, the ones that were considered for his anthology went from type smooth, soft depressions to little protuberances that similar characteristics have cumbe to the prototype.

Ecotipos's selection

Finally the best ecotipos chose themselves that potentially commercial capabilities, according to the characteristics of the model possess cumbe.

RESULTS

They collected 07 ecotipos of cherimoya fruit of the localities of Acobamba Huancavelica's district, which registered in the following data of certainty, to present similar characteristics to the prototype Cumbe themselves.

ECOTIPO FCA – 001

to.- collection

Estate : Runtush

Owner of the estate: Red Swashbuckler, Robert

Put a date on of collection: 04/09/2016

ECOTIPO FCA – 002

to.- collection

Estate: Runtush

Owner of the estate: Steep Gonzales, Mary

Put a date on of collection: 12/09/2016

ECOTIPO FCA – 003

to.- collection

Estate : Huanca Huanca

Owner of the estate: Red Swashbuckler, Robert

Put a date on of collection: 21/08/2016

ECOTIPO FCA – 004

to.- collection

Estate: Huancas

Owner of the estate: Mendoza Ochoa, Francis

Put a date on of collection: 16/08/2016

ECOTIPO FCA – 005

to.- collection:

Estate: Alchay

Owner of the estate: Huayhua Yangali, Félix

Put a date on of collection: 21/07/2016

ECOTIPO FCA – 006

to.- collection:

Estate: Ccochag

Owner of the estate: Huamán Aguirre, Peter

Put a date on of collection: 03/09/2016

ECOTIPO FCA – 007

to.- collection:

Estate: Ccochag

Owner of the estate: Yangali Red, Maglorio

Put a date on of collection: 08/08/2016

The ecotipos's morphologic determination.

They evaluated the 07 ecotipos, so much at the room like at the enclosure marked off by definite limits and the external characteristics and interns, of whom got registered 3 ecotipos to present similar characteristics to the prototype selected Cumbe themselves.

Morphologic particularities of the fruits

Collection of fruits (ecotipos)

Indentificar caught up with to little protuberances at the 05 localities of Acobamba's district, of whom 07 ectipos's total of cherimoya fruit with fruits of the kind of exocarpo smooth, soft depressions; 2 ecotipos find their place at lLlacce's locality; 1ecotipo at Casavi's locality; Likewise 1 ecotipo at Santoala's locality; 1 ecotipo found its place at Huancas's locality; 2 ecotipos met at Ccarhuacc's locality. They show these data in the following Board.

Board N 3. Ecotipos of cherimoya fruit identified by locality.

Locality	Numbers of Accessions
Llacce	2
Casavi	1
Santoala	1
Huancas	1
Ccarhuacc	2
TOTAL	07

The average altitude for each locality between the number of ecotipos, in relation to the sea level and the zone of life where the 07 ecotipos provided evidence of identity evidence in the following Board 04 themselves.

Board N 4. Average altitude for locality and zone of life.

Locality	Average altitude in msnm	Zone of life
Llacce	1812	mte–PT
Casavi	2164	mte–MBT
Santoala	2174	mte–MBT
Huancas	1978	mte–MBT
Ccarhuacc	1878	mte–PT

We can add the minor and bigger altitude on this where himself I manage to identify 02 ecotipos, you show up in the board 5:

Board 5. Maximum altitude and half note which an ecotipo provided evidence of identity in.

Altitude	msnm	Locality
Mínimum	1812	Llacce
Peak	2174	Ccarhuacc

Characteristics of the fruits

External characteristics

Form of the fruits. The way of the fruits in the 07 ecotipos identified at the 7 localities of Acobamba's district, they had the following forms:

Neighborhood.- they identified this fruits form in 3 collected ecotipos.

Flattened.- they identified this fruits form in 2 collected ecotipos.

Heart-shaped.- they identified this fruits form in 2 collected ecotipos.

The exocarpo's color. They had the following signs painted in colors: 3 of green color, 3 forest greens, 1 yellow-green.

The exocarpo's type. As to the kind of exocarpo according to the manual of descriptors, of the fruits identified at the 7 localities of Acobamba's district, they specified according to the prototype cumbe, and the following met : 1 Smooth accessions, 3 with Depresiones soft and 3 with little protuberances.

Size of the fruits. Of the 07 ecotipos detailed at the 7 localities, 1 of big size, 6 of medium size met .

Weight of the fruits (g). 4 ecotipos on top of 300 grams for fruit, 3 accessions of 400 grams for fruit met .

Internal characteristics.

Color of the pulp. According to the codes of the descriptor once 1945 were used by Schroeder; The colors of the pulp of the fruits in the 07 ecotipos evaluated at the laboratory of the 7 localities, 2 pesentaron white-colored pulps and 5 showed cream-colored pulps.

Grades Brix. Brix of the fruits determined the grade himself for each locality, finding an accession with principal of 24.2 Bx, 4 accessions with 20 to 23 Bx, and 2 accessions with 18 to 19 Bx.

PH (Potential of hydrogen ions). The grade of acidity of the fruits for each locality was determined, finding 2 accessions with pH on top of 5.10 to 5.22 and 5 accessions with pH of 4,31 to 4,80

Oxidation of the pulp. They encountered 3 accessions with pulps without oxidation and 4 accessions with pulps little rusted

Number of seeds for fruit. It was proceeded to telling the total of seeds between the number of accessions for each locality and they found 2 accessions with 22 and more seeds that they were having between 5 and 18 seeds for fruit for fruit, 5 accessions.

Relation pulp seed the number of seeds for 100 grams of pulp they oscillated between 1,15 to 6,05 seeds.

PROCESS OF anthology OF CHERIMOYA FRUIT

The farmer of the valley of the Huancas (Acobamba) considers like optimal moment for the anthology, when a light change in the coloration of the external surface of the fruit from forest green has a light green that, the elk is only visible the eyes of the person of field, than based it achieves accurately to tell the aforementioned change in the coloration from the fruit's skin in his event experienced in life and experience; Also a random sampling makes of the fruits verifying the color of the seed, making a chunk and getting to the seed through this and confirming the color of the same: If you are colored in brown an apt fruit is not for the anthology

The harvest in the places of study is a family activity, where they intervene in from the head of the family to the children age enough to take part in the aforementioned activity, these last joining the fruits that they drop to the ground to group them next in one point of the space of stock.

The separation of the fruit of the branch of the tree they accomplish it pulling out this; Of those next branches at close hand with the arm stretched of the harvester, the distant

fruits pull them out valiéndose of a tool or manufactured hook a branch that shows an upside-down pitchfork at the end of this.

During the epoch of the harvest, family activity, he is the head of the family, the father, it is who else kilos of fruit get to collect, that way the man manages to recollect to 200 kg's daily average in a day of task, in the meantime than the women 60 kg. at plots of land of bigger extension (3 hectares)

The fruit falls in the best of the cases from who stretches it like diving board arrives, toward the harvester's pole and, if not, fall to the ground, many times causing bruises in the fruit

The recollected fruit is put provisionally in a saddlebag, stops next being taken to a heartland below a tree's goblet in general where they store up all of what recollected one belonging to the day

TRANSFER of the HARVESTED PRODUCT

She is the mules used for the transportation of the recollected product of wooden drawers in the shape of saddlebag, which will have to have a journey approximately between 1 to 2 hours, from the place of anthology to the place of stock.

Once culminated the I pick up of fruits in the ground, they proceed to bagging in bags tweeds in average of 60 to 70 kg.

The transfer came true in mules, point where arrive buyers in order that the recollected product be transferred to its destination.

The aggregate of the product in the area of stock, music in bags and loaded to mobility's platform where they are equipped in jabas plastic with 20 kg.'s average of fruit for jaba, for his transportation of all the product.

DISCUSSION

After of having walked the 5 localities of Acobamba's district, and having recognized cherimoya fruit plantations, pregnant wild at the family kitchen gardens; Cumbe, considering the kind of the exocarpo smooth, soft depressions selected to little protuberances 07 similar ecotipos to the prototype, and only they kept 3 ecotipos to present internal similar characteristics to the prototype cumbe. As you indicate Tineo (2009) than exist selections accomplished as from appropriate lines of seed, that ecotipos have originated such like Cumbe, Asca and San Miguel, between another one. Cumbe is the most popular to present better characteristics of taste, size and the fruit's form. They have not generated new varieties, with bigger production capacity and good quality of fruit. Also you mention that the cherimoya is a marginal cultivation, that you find yourself in family kitchen gardens, existing very few commercial plantations. The cultivation suffers from a technical handling; The agronomic handling and control are fitosanitario inadequate. The selected ecotipos came from the kind of exocarpo smooth, soft depressions to little protuberances, as CHIRIFRUIT yields it (2010) than the prototype's fruits are cumbe of rounded off form, obvious green color, with smooth skin to soft depressions. They found fruits of different forms like: Neighborhood (3), flattened (2) and heart-shaped (2), these different fruit forms, do not make uniform, result is of the genetic process once the aspect was related of fertilization of a number enough of ovules to yield results well conformed asymmetric or when the ovule does not get to be fertilized, the correspondent carpel does not develop itself, producing deformation in the fruit, as Schroeder (1995) and Guirado indicate it (2003). You have found fruits in bigger quantities (3) of dark green color, 3 of green color and 1 of yellowish green color, where Tineo (2009), in a job of investigation registered as a legitimate real estate property promissory accessions of the bench of germoplasma sold

off in Ayacucho, you found you color of exocarpo forest green (2), brown green (1), in the three characterized accessions. The evaluated ecotipos presented contentses of syrups of 18.8 to 20.8 willingly Bx and average pH of 4.361 to 5.22; (2014) you yield according to INFOAGRO than the majority of the fruits of the chirmoyo they have a superior Brix to the 20 %., In the meantime than Cholota et to the (1999) they mention that the cherimoya fruit is a sweet fruit, due to his tall contents of sugars and bass in acids. They were the color of the pulp evaluated (2014) mention of white colors (3) and cream (4), according to Rebaza than the cherimoya fruit cumbe is tasty, the inside is creamy and lodge black-colored seeds. His taste is sweet and she is very aromatic. They came from 2 as to the selected ecotipos's number of seeds with of 22 seeds and them besides accessions had for below 21 seeds for fruit. Of the ecotipos preferred, one finds its place at the locality of Llacce, another one at the locality of Huancas and another one at Ccarhuacc's locality, them that internal similar characteristics showed the prototype cumbe, as you indicate Re-Trick (2014) than the cherimoya fruit cumbe has tall contents of sugars and bass in acids, taste is sweet, very aromatic. The most relevant correlations took place between habit of fructification and taste of pulp, texture and taste of pulp, texture and color of seeds, taste and oxidation and taste of pulp and color of seed. According to (2008) very INEN the 26 % impressa and obvious green color and the 23 % with black seeds and sueltas.De fulfill the characteristics of symmetry and uniformity, the 20 % with form of heart-shaped and symmetric fruit, the 27 % with type of exocarpo I agree on the obtained results we accepted the presented hypothesis right now what if differences in the characteristics of commercial capabilities of the ecotipos of cherimoya fruit evaluated and at least three ecotipos exist (1, 4 and 7) desirable characteristics for production possess such like: Size and weight of the fruit, thickness and optimal length of the peduncle, big seeds, number and weight of seeds with respect to the weight of the fruit, once loudly the penetrómetro was contained of soluble solids, under level of pH, loud resistance and to the abrasion, habit of half a fructification, thin exocarpo with low weight and of obvious green color, white pulp, creamy texture, good flavor, without oxidation, symmetric, heart-shaped, black seeds and releases, under contents of fiber, uniform fruits and exocarpo's type impressa. It is estimated that a great potential to produce cherimoya fruit of loud quality at Acobamba Huancavelica's province, thanks to the climatic goodnesses and edafológicas of the small valleys of the localities under consideration exists. González V, M.E. (2013). For the availability of genetic material mejorado.La productivity of the cherimoya fruit can improve the application of good agricultural practices, such like the handling of density of planting, prunings of formation, fructification and rejuvenation, induction significantly intervening to flowering, manual pollination to increment the number of pollinated flowers and pest control, that in the event of the cherimoya fruit the Mediterranean fruit fly's control is circumscribed (Anastrepha sp). In the harvest and poscosecha, with the use made suitable of collecting techniques, selection of the fruits, storage, packing and dispatch to the marketer or end consumer, also the producer's entrances can be improved and, therefore, profitability.

RECOMMENDATIONS.

Improving the techniques of harvest for the sake of minimizing the mechanical damages on the fruits in addition to maintain a chain of cold during the transportation toward the markets of distribution,. Fomenting the production of the cherimoya fruit tecnificada that develops in the space of Acobamba's province, promoting the capacitations to the producers dedicated to the production of cherimoya fruit to those concerned in producing the cultivation. Considering the results, it is recommended that capacitation be guided to spread out the techniques prioritilyly like: Induction, flowering, manual pollination, the Mediterranean fruit fly's control and the utilization of homemade traps to reduce populations' density of this plague; The harvest deserves bigger attention utilizing good

practices for anthology and selection, by means of protective packings of the fruit for storage and transportation made suitable, reducing losses for physical mistreatment to the produce. Improving the commercialization in three important points: Accomplishing a constant tracking of the fair market values according to weight, and size of the fruit, in order that producers look for alternative news of commercialization, constant Tracking of the consumer behavior to adapt the product to his pleasures and requirements; Utilization of promotional material and news program of why consuming cherimoya fruit, in order to stimulate the request of this fruit. You set yourself the recommendation of the integration of processes in agronomic handling and complementing with the process agroindustrial for the elaboration of pulps, juices, ice creams, and also the utilization of by-products like the seeds for the elaboration of insecticide; The utilization of this fruit would this way be optimized, so much in cool air like defendant.

FINDINGS

It was managed to identify Chrimimoya's ecotipos for the commercialization for production and during research work, Se or increment the cultivation of the cherimoya fruit, the agroindustrial process for the elaboration of pulps, juices, ice creams were complemented. Himself I develop the teamwork for the events of constant capacitations to the producers dedicated to the production of cherimoya fruit to the people gotten interested in producing the cultivation of the Cherimoya Fruit. You were recommended the orientated capacitation to spread out the techniques of handling and cultivation of the Cherimoya Fruit at Acobamba's district with the obtaining of the results, himself I practice the development of the transfers of the fruits in the especial jabas for commercialization and distribution of the products to the shopping centers of the closer city.

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