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Research Article

Selection of Judges to Train Sensorally in the Cacao Cataction in the Sena Center of Attention to the Santander Regional Agricultural Sector

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Abstract: The main objective of the present investigation was the linkage of the actors of the cocoa chain in the sensory evaluation of the cocoa liquor, through evaluation of the state of health, the alimentary habits, the availability, the disposition and the taste for the cocoa of the participants, followed by a series of preliminary sensory tests, participants who guessed these tests continued with the process and were tested for comparisons (Duo Trio, Pares and Triangular). The people who continued in the process received training and training in sensory evaluation of cocoa liquor. The Colombian cocoa is classified as fine and of aroma, which generates an added value for the commercialization of the grains. In the municipality we do not have personnel trained in the sensory evaluation of cocoa liquor, for this reason, the need arises to create a panel of judges trained in the Center for Agricultural Sector Assistance, this process was supported by the Colombian Technical Guides 165, 226, 245, 246 and the Colombian Technical Standard 4129, 3929. With the results of the process, the sequential analysis was applied, with a level of significance of 95% and an upper limit of selection of 70%. This allowed the selection of 59% of the candidates, allowing the formation of a group of personnel that will receive training and training in the sensory evaluation of cocoa liquors.

Keywords: Cocoa, judges, liquors, panel, sensory

INTRODUCTION

The biggest attraction of Colombian cocoa in international markets is its "fine aroma" distinction, granted by the International Cocoa Organization (ICCO), which differentiates it from others in the world. Which represents between 6% and 7% of global production, which has provided greater export opportunities in European markets in recent years (Pro Colombia, 2016). Behind every food that we take to the mouth there are multiple procedures to make them appetizing and good quality for consumption (Carpenter *et al*., 2002). One of these aspects is the sensorial analysis, which consists of evaluating the organoleptic properties of the products, that is, everything that can be perceived by the senses (Anzaldua, 1994). Defining and describing which characteristics or attributes of a food are important sensorially and how they should be measured is not an easy task, despite being broadly described in a generic way (ISO 11035, 1994; Meilgaard *et al*., 1986; Stone *et al*., 1974; Stampanoni, 1993) Taste is the most important sensorial attribute in and is difficult to evaluate because it is a complex combination of olfactory, taste and trigeminal sensations perceived during consumption and whose interaction is still being studied by many researchers (Afoakwa, 2010).

At the moment the Center of Attention to the Agricultural Sector CASA of the SENA, regional Santander, is characterized by the productivity and competitiveness of the agroindustrial sector, specifically in the chain of transformation of the cocoa, owns a laboratory of sensorial analysis according to the ICONTEC GTC 226 (2012) endowed with Equipment with Swiss technology to prepare samples of small-scale cocoa liquor; In spite of the development achieved in this production and the complexity involved in the evaluation of these products, there are no personnel

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trained in the sensory evaluation of cocoa liquors, the clones produced at the hot water headquarters of the municipality of Play on, therefore it is necessary to have a sensory panel of judges trained in the specific evaluation of the attributes of the products obtained from the cocoa in the headquarters of Guatiguará.

MATERIALS AND METHODS

The research was carried out in the sensory evaluation laboratory of the Center for the Agricultural Sector of SENA, which together with the teaching and research activity in this branch, has the first Latin American school of cocoa and chocolate, through which they are produced A wide assortment of toppings, chocolates, stuffed truffles, chocolate chips that sell inside the Center of Attention to the Sector Agropecuario.

For the pre-selection process, a recruitment was made to link the majority of the actors in the cocoa production chain (instructors, apprentices, processors and producers), who were interviewed to know, general information, availability, Eating habits and possible diseases. After this stage the taste tests were carried out, the basic flavors were identified, corresponding to the sensations: sweet, salty, acid and bitter in the concentrations supported under the ICONTEC NTC 3929 (2009) followed by the olfactory sensation test (ICONTEC NTC 4503, 2011) for which mother solutions of aromatic compounds were prepared, the pre-candidates to judges were familiar with the odors by supplying to each of them the vials identified with the name of the substance and the associated descriptor, these solutions were prepared 20 min before to perform the tests.

The substances were presented to the pre-candidates in covered bottles and then exposed to the air for a few seconds so that they could carry out the test, establishing for the approval of the candidates the recognition of 85% of the substances.

During the selection process of the judges, who will receive training and training, the candidates who passed the gustatory and olfactory sensitivity tests were taken into account; The descriptive tests (Duo Trio, Pares and Triangular), supported under (ICONTEC NTC 2681, 2006) were applied to the pairs test, the candidates were given two samples of a food and asked to identify the difference in each one (More degree of sweetness), we continued with the trio Duo test, in which three samples of a food were given to them, one identified as a reference standard and the other two, one equal to the standard and another different and asked them to identify the sample equal to the reference, for the execution of the triangular test the candidates were given three samples of one food and asked to identify the different sample. All samples were processed in triplicate and with different types of food. The results obtained were applied sequential analysis.

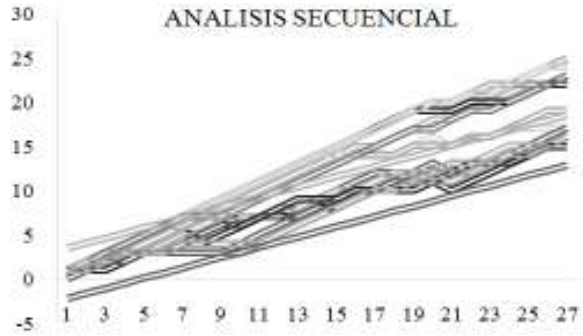

Fig. 1: Selected sequential analysis

RESULTS AND DISCUSSION

There were 220 interested in being part of the panel of chocolate tasters, of which 99 were not selected because of their addiction to coffee, pepper and tobacco, can obstruct the evaluation of bitterness (Espinosa, 2007), a very important attribute in the evaluation of chocolates.

The analysis of the results of the gustatory acuity test showed that of the 121 candidates who tested the basic flavors (sweet, salty, sour and bitter), 23% confused acid and bitter tastes, these candidates did not continue the remaining trials.

The 93 pre-candidates resulted in the olfactory sensitivity test, of which only 54% correctly identified the substances presented, either by the name of the compounds or by the related aromatic note.

To the 50 remaining candidates, the descriptive tests were applied and with the results obtained the sequential analysis was applied, with a level of significance of 95% and an upper limit of selection of 70%, which allowed to select 59% of the Candidates to receive training and training.

Figure 1, it can be concluded according to the application of the NTC 5279 sequential analysis that most of the judges are in the zone of indecision but have an ascending tendency within the limits, this means that the judges need follow-up and training to be located in the acceptance zone and thus be able to perform these tests better.

Figure 1 it is observed that the tasters of this group must be trained to develop and maintain over time the ability to distinguish and evaluate the intensity of the attributes presented by cocoa, within which are the basic, specific and acquired. With the data obtained and plotted from this group of this group, a high potential is observed with the judges who are in the area of the zone of indecision, according to this it is important to eliminate the factors that induce the loss of ability and do not lose these candidates to judges.

On 2015, in the validation of the cocoa grade quality index of three clones, CCN 51, ICS 60 and ICS 95 it was worked with a panel of judges that were selected using this methodology and that they have been performing adequately (Fuentes *et al*., 2015).

Quintana in 2016 in the process of selecting judges in Fedecacao, San Vicente de Chucurí found a similar trend in a group of 46 candidates for judges of Cocoa Liquor, applying the same Technical Standard, a panel that has behaved consistently in its evaluations (Quintana-Fuentes *et al*., 2016).

CONCLUSION

The methodology applied allowed the formation of a suitable group for the training in the sensory evaluation of cocoa liquors to identify basic, specific and acquired attributes and which was made up of 30 candidates.

The selected candidates presented adequate taste, visual and olfactory sensibility, together with an adequate precision and a high discriminatory capacity, demonstrating the ability to discriminate and consistently detect these attributes.

The application of technical standards allows to guaranteed an adequate selection that will allow working with judges that will be consistent with time, thus guaranteeing valid and repeatable judgments.

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