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Specialty organic coffee cupping in Nepal

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Abstract

The Coffee cup testing samples were collected from different companies of Kathmandu valley and cooperatives of Nepal. Received samples were carried in Coffee Lab Kathmandu. All the samples were prepared for lab test such as preparation (roasting), determining measurement, Cupping preparation, pouring and samples evaluation. Total 17 samples were testing, among them Y012 was 1st, Y006 2nd, Y0014 3rd, Z005 4th, Z003 5th and Y006 6th respectively. The results showed that more than 83% of the production of Nepal Coffee is Specialty Coffee.

Keywords: Coffee, cupping, testing, q grade, company, cooperative

1. Introduction

Nepal has three agro-ecological zones: Mountain region, Hills region and Terai region. Mountain region is northern area which is more than 3000 meters from sea level, hilly region laying from 700 to 3000 meters and Terai from 59-700 meters. The hills area from 1150 to 1400 meters has suitable climate for quality coffee production.

Organic coffee is one of several types of speciality coffees selling at a premium over mainstream coffees because of distinct origin and flavour characteristics (e.g. Jamaican Blue Mountain, Guatemalan Antigua, Kenya AA), environment-friendlier production systems (certified organic, shade-grown, bird friendly), and socio-economic concerns for the smallholder coffee growers (Fair Trade) (VOSSEN, 2005) [7]. Coffee growing and drinking spread around the world starting in the Horn of Africa, in Ethiopia, where the coffee tree probably originated in the province of Kaffa. The succulent outer berry flesh was eaten by slaves taken from present day Sudan into Yemen and Arabia, through the great port of its day, Mocha, now synonymous with coffee (Hicks, 2002) [3].

Coffee plantation is still a new adventure in Nepal. In 1938 AD, a hermit Mr. Hira Giri had brought some seeds of Coffee from Sindu Province of Myanmar (the then Burma) and had planted in Aapchaur of Gulmi District for the first time in Nepal. After Hira Giri introduced coffee in Nepal, it stayed as interesting plant for a very long while onwards until the then His Majesty's administration chose to import Coffee seeds from India in 1968. Mid 1980s saw a critical advance in Nepali coffee area: the Primary ever Coffee progress, Nepal Coffee Company (NeCCo), built up in 1983 and only a year after, Coffee development Center under department of Agriculture was set up in Aapchaur, Gulmi (Gautam, 2017, p. 11) [2].

The major stakeholders working in the production, development, processing and marketing of coffee are: Central Coffee Cooperative Union Limited (CCU), National Coffee Producers Association (NCPA), Plantec Nepal Inc., Royal Everest Coffee Mills (P) Ltd., Highland Coffee, Department of Tea and Coffee Development and National Tea and Coffee Development Board (NTCDB).

According to Government of Nepal, Ministry of Industry publication report Coffee is one of the highest traded commodities in the international market. There are two important species of coffee in the world- *Coffea Arabica* (Arabica coffee) and *Coffea Canephora* (Robusta coffee). Among these, the self-pollinating Arabica coffee is perhaps the most highly acclaimed species. All Nepalese coffee is Arabica coffee. This high value cash crop is becoming extremely popular among Nepalese farmers. Coffee plantations have now spread to over 40 districts in the Nepal's hill country, and more than 30,000 households are now involved, either individually or through cooperatives (Industry, 2015, p. 10) [4].

The Kathmandu post Nepal Tea and Coffee Board A total of 23 districts including Gulmi, Palpa, Arghakhanchi, Lalitpur, Tanahu, Kavre, Sindhupalchok, Lamjung, Kaski, Gorkha,

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Syangja, Parbat and Baglung, among others, are the major coffee producing districts in the country. “We have conducted a preliminary study that has identified 41 districts as having high potential for coffee production,” Sesh Kanata Gautam said.

"There is a great potentiality for coffee cultivation in hills, due to suitable climate, topography, soil structure, relative humidity, temperature and rainfall," says Gyanendra Adhikari, president of Central Coffee Cooperative Union (CCU) Limited (Pokhrel, 2009) [5].

1.1 Important of benefit of Coffee are

a. Personal Health benefit:

High in antioxidants, vitamins and minerals, coffee boosts the immune system and guards against disease. Free of pesticides and artificial fertilizers, organic coffee reduces the risk of harmful chemical ingestion. Moderate amounts of caffeine can provide a natural energy boost.

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b. Environment benefit: Widely accepted as environmentally friendly, organic farming minimizes the dependence on synthetic material added to the soil. Under organic farming standards, natural fertilizers, such as compost and mulch, are used in the place of artificial fertilizers. This benefits the coffee crop as well as the soil.

Specifically, organic coffee will benefit from the chemical free nutrients they can absorb from the soil, greatly enhancing taste. Typically, farmers practicing organic techniques are often closely linked with fair trade practices, which can help coffee producers in developing countries to maintain a sustainable livelihood.

Gautam wrote on his unpublished thesis generally, there are five players/stakeholders who are involved in bringing coffee from producers to the consumers or selling centers. They are farmers, collectors, pulpers, processors and traders. However, for the last few years, some collectors have also started performing the role of pulping the ripe cherry and forward it to the processor. This channel is common in wet processing system which covers nearly 80% of the market. Besides, above mentioned circuit, in some places, the farmers bring ripe cherry/dry cherry to the collector, who in turn (after drying if he buys the ripe cherry) takes it to the processors directly. This prevails in the dry processing system that accounts for nearly 20% of the market share. In both the processes, the processors themselves act as traders and sell the final products either in the domestic and, or overseas market. The domestic and export market of Nepal is domestic 35% and foreign Japan, Europe and USA 65% (Gautam, 2017, p. 17 & 18) [2].

Table 1: Quality Scale of Coffee

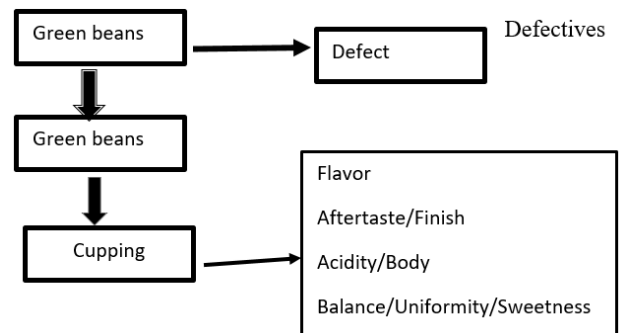
Quality Scale			
6.00	6.00	6.00	6.00
(Good)	(Good)	(Good)	(Good)
7.00	7.00	7.00	7.00
(Very Good)	(Very Good)	(Very Good)	(Very Good)

(America, 2015, p. 10) [1]

1.2 Objectives

- To conduct Q-Test of different area production Coffee of Nepal.
- To explore the quality of Coffee from different Companies of Nepal.

1.3 Cupping procedures/steps



1.4 Cupping Protocols

1. Weight coffee in individual cups as whole beans.
2. Grind within 15 minutes of water contact (30 with lids) to CORRECT grind size.
3. Flush grinder between samples.
4. Pour water calibrated to SCAA standard 125 – 175 ppm TDS at 93.33°C.
5. Pour water consistently, wetting all grounds and filling cup to top without spilling.
6. Steep 3-5 minutes.
7. Break, Stir 3 minutes.
8. Skim the surface bubbles and surface grounds.
9. Steep. Let cool to 71°C, about 8-10 minutes.
10. Aspirate and taste.
11. Rinse, spit, documents, and repeat up until cooled 21°C.

2. Materials and Methods

The Coffee samples are collected from different companies of Kathmandu valley. The companies have been collected from different geographical hilly part of Nepal. The coffee parchments samples carry in coffee lab Kathmandu. The sample has been preparation (roasting), determining measurements, cupping preparation, pouring and sample evaluation.

3. Results and Discussion

The following table shows the results of organic coffee speciality test in Nepal.

Table 2: Results

Organization	Districts	Sample ID	Grade based on green beans and Quakers	Grade based on cupping	Average score	Position	Status	Cupping impression
Gulmi district coffee Cooperative Ltd.	Gulmi	Y001	Below specialty	–	82.13	–	Too many Quakers.	Received in both Wet and Dry processed, only Wet process evaluated.
Palpa district coffee Cooperative Ltd.	Palpa	Y002	Below specialty	–	82.63	–	Quakers.	High moisture content, not cleaned, looks like poorly hulled.
Prasidda district coffee Company	Nuwakot	Y003	Below specialty		82.50		Quakers on roasting.	Slight insect damage, moderately cleaned, broken and chipped.
Ilam district coffee Cooperative Ltd.	Ilam	Y005	Below specialty	–	82.75	–	Broken and chipped, cuts, over or improper drying. May require hulling calibration.	Potential to make better.
Sindhupalchok district coffee Cooperative Ltd.	Sindhupalchok	Y006	Below specialty	Specialty	82.38	6th	Yellow green color.	Aged Coffee.
Nuwakot district coffee Cooperative Ltd.	Nuwakot	Y012	Below specialty	Specialty	83.13	1st	No primary and secondary defects found. Carefully cleaned and sorted.	Carefully cleaned and graded with good moisture content.
Lalitpur district coffee Cooperative Ltd.	Lalitpur	Y008	Below specialty	Specialty	82.88	2nd	Carefully sorted.	High density Coffee, good screen size and color, no fungus damage.
Gorkha district coffee Cooperative Ltd.	Gorkha	Y009	Below specialty	–	0	–	Not roasted - high moisture content around 16%, 18+bens, undried, faded.	Not roasted
Lamjung district coffee Cooperative Ltd.	Lamjung	Y0010	Below specialty	–	0	–	Received in parchment, not milled.	Not roasted
Gulmi Coffee Cooperative Ltd.	Gulmi	Y014	Below specialty	Specialty	82.63	3rd	–	Aged, improper storage, large sized beans, may be a different variety but potential for improvement.
Nalang coffee Company	Dhading	Z002	Below specialty	–	82.00	–	Quaker and more than five immature beans.	A lot of whitish beans, discolored and aged. Floater, shells, slight insect damage and chipped and cut.
Prasidda coffee Company	Nuwakot	Z003	Specialty	Specialty	82.38	5th	–	Carefully cleaned and graded with good moisture content.
Kathmandu coffee Company	Kathmandu	Z004	Below specialty	–	81.75	–	Full black, partial black, broken beans with silver skin but good moisture.	–
Ilam district coffee Cooperative Ltd.	Ilam	Z005	Specialty	Specialty	82.50	4th	Strong tea-like aroma/spices.	Not well clean but okay Coffee.
Kathmandu district coffee Cooperative Ltd.	Kathmandu	Z004	Below specialty	–	79.50	–	Received in parchment, immature, floaters, fully sour, partial sour, shells	–
Kavre district coffee Cooperative Ltd.	Kavre	Z007	Below specialty	–	79.63	–	Too many Quakers, foreign matter, husk, not well dried, partial fungus, and sugar not developed in green beans, Immature may from low altitude.	–
Coffee Cooperative Union	Kavre	Z0013	Specialty	Specialty	81.13	7th	–	High moisture contain, aged coffee.

3.1 Positive aspects

- Possibility of the significant improvements on enzymatic aromas & we can hope to core higher with a little more care on harvesting, processing & storage only.
- Most of the sample found to have a good balance & clean cup.
- No brocas & potato defects.
- Most of the coffees are medium bodied.

4. Findings

1. Aged and High Moisture: Most of the sample received were related to age, white, faded, high in moisture content (more than 12% MC).
2. Defects (Immature, floaters, underdeveloped).
3. Fermentation
4. Complexity.
5. Sugar Browning and Dry Distillation.
- 6 Potential to Improve. Highest Scoring Sample

5. Recommendation

1. Aged and High Moisture
 - 1.1 Lack of knowledge on Moisture content and its impact in quality.
 - 1.2 Unavailability of moisture meter. A belief on traditional way of checking moisture by sound or teeth.
 - 1.3 Improper drying and storage.
 - 1.4 Unstable water activity level. Water activity level should be stable (less than 0.60 aw).

2. Defects (Immature, floaters, underdeveloped)

- 2.1 Ripeness of fruits (brix value of around 20 – 25 %), processing, sorting.
- 2.2 Cherries should be picked when it is fully ripened and developed.
- 2.3 Floaters should be removed.
- 3 Fermentation should be controlled and recorded with time, temperature, humidity, pH value.
- 4 Lacking complexity of delicate floral & fruity aromas. Most of the aromatics problem were found associated with enzymatic aromas, which means there is a need of education on selective picking, presorting, controlled fermentation and right drying technique.
- 5 The source of sugar browning & dry distillation aromas issues are mostly because of improper ways of storage.
- 6 60% of the samples received are below Specialty Grade but it has a potential to be improved through sorting only.

6. Conclusion

- Harvest year 2019 and 2022 may be celebrated as a “Year of Aroma Improvement” with the plan to improve Enzymatic Aromas in coffee because most of the issues are found associated with Enzymatic aromas and this type of aromas are the result of harvesting specially with right picking, pre- sorting, sorting, fermentation and drying. We cannot change our geography but we can improve on picking and processing.
- Quantity should be increased, no doubt, but Quality should not ignored or overlooked.

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