

● Ingredient of Tea - Special Quality ●

● 【Moisture content】

Green tea is hygroscopic and if moisture content becomes higher, its quality will deteriorate easily. For this reason, it is important to control the green tea product at storage or for the economic efficiency of the manufacture. As for refined tea, two percent to four percent is proper.

● 【Total Nitrogen (T-N)】

The total amount of the nitrogen contained in protein, free amino acid, caffeine, etc. among green tea ingredients is called total nitrogen. Between the quantity of total nitrogen and organic-functions examination evaluation of green tea reveals positive high correlation. Good tea has more total nitrogen. Therefore, the content of total nitrogen has been regarded as the important index on quality evaluation.

The content of total nitrogen is about three percent to seven percent.

● 【Total Free Amino Acid (TFAA)】

There are 16 kinds of main amino acid existing in green tea. This total quantity is measured as all the free amino acid (TFAA). Generally, the proportion balance of the amino acid is considered to be the mother of exquisite taste of green tea. A TFAA content is about one percent to seven percent in green tea.

● 【Polyphenol】

Ingredients of dyes and astringency and bitterness of the plant are produced by photosynthesis.

The majority of polyphenols of tea is catechin including epigallocatechin gallate. Functionality to human health of polyphenols have been frequently reported. The polyphenol content of green tea is about ten percent to 25 percent in green tea.

The International Organization for Standardization: ISO11287:2011 regulated as a definition of green tea should include eleven percent or more polyphenols.

● 【Epigallocatechin gallate (EGCg)】

The bitter taste ingredient in green tea is catechin, a kind of polyphenol, EGCg is approximately 50 percent of catechin.

A EGCg content is from about four percent to 13 percent in green tea.

EGCg has human excellent health on functionality, effects such as antibacterial and antiviral activity, cholesterol absorption inhibitory activity and cancer cell proliferation inhibitory activity have been reported.

Catechin easily gets oxidized during fermentation, so the catechin content of oolong tea is less than half of the volume green tea has and black tea is even less than oolong tea.

● 【Caffeine】

The bitter taste ingredient in green tea is caffeine and it is contained 1.5 percent to four percent in green tea. Generally young buds or shaded tea contains more, and less in coarse tea or black tea.

Caffeine excites the central nerves system and has cardiostimulant effect and diuretic effect, etc. By cutting down caffeine to less than one percent, low caffeine tea has been made, whose stimulus property is weakened, good for pregnant women or children.

● 【Carbon】

Green tea with many fiber and inferior quality contains a lot of carbon.

It is possible to determine whether produced by good quality leaves by the amount of carbon.

◆ Quality evaluation by the combination of Ingredients ◆

It may be better to evaluate the quality based on the combined ingredients in green tea rather than an independent ingredient estimation.

■ About the notation method of Ingredient contents ■

Two kinds are shown in the notation method of moisture content. One method is the ratio of moisture weight and the amount of dry matter weights 'Dry Base %' and the other is the moisture rate in the whole sample 'Wet Base %'. This analyzer has adopted the wet basis according to "Standard tables of food composition in Japan 4th Edition". For this reason, the display of 300DB% often seen at the time of tea processing is also displayed as 75WB%.

It means the both have the same moisture contents.

Two kinds are shown also in the notation method of each content of total nitrogen, NDF, TFAA, polyphenol, caffeine and carbon other than moisture.

One is a notation of an ingredient content depending on making a sample of moisture content zero percent 'Dry Base DRY%' and the other is the notation of an ingredient content according to moisture at the time of sample measurement 'ASIS%'.

We have adopted the dry base DRY% so that the mutual comparison of the ingredient of a green tea sample can be carried out.

In order to carry out comparison examination of the content of each ingredient correctly, it is necessary to check exactly which notation method has been adopted.

■ The standard of measured value ■



Reference

Tea Ingredients Analyzer GTN-C7 was developed with a joint research between Ph D. Prof. Xiaochang Wang; Institute of Tea Science College of Agriculture and Biotechnology Zhejiang University, and Kawasaki-Kiko Co., Ltd.; Tea Machinery Manufacturer in Japan.

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