

to the knowledge and qualifications that have been previously acquired through either formal or non-formal education.

International project “From theoretical-oriented to practical education in agrarian studies/ TOPAS” is a European project co-funded by the EU program “Erasmus +” that involves ten partners in six European countries: Germany, Great Britain, Romania, Poland, Armenia, Ukraine and Uzbekistan. The main goal of the project is to facilitate the transition from teacher centered knowledge-based form of education to student-centered practice based education in Agriculture studies - and hence employability - in Uzbekistan, Ukraine and Armenia by enhancing the cooperation university-agrarian enterprises through adequate internship schemes.

By developing tools and paths for improvement of practical skills of graduates and fostering better links with agribusiness, the project will enhance employability and thus contribute to the improvement of the livelihood of the local population through intensification of private farming based on (ecologically, economically and socially) sustainable land and water resources. Benefits of implementing it: better student outcomes, better preparation for employment (increasing their employability), increasing of student satisfaction.

*Maistrenko K. Ya.,
Student*

Yudicheva O. P.

*Candidate of technical Sciences, Associate Professor of Department of Commodity
and Commercial Activities in the Construction*

Samoylenko A. A.

*Candidate of technical Sciences, Associate Professor of Department of Commodity
and Commercial Activities in the Construction*

*Kyiv National University of Construction and Architecture
Kyiv, Ukraine*

COMMODITY ANALYSIS OF SPICES: CINNAMON

A spice is a seed, fruit, root, bark, or other plant substance primarily used for flavoring, coloring or preserving food. Spices are distinguished from herbs, which are the leaves, flowers, or stems of plants used for flavoring or as a garnish. Many spices have antimicrobial properties. This may explain why spices are more commonly used in warmer climates, which have more infectious diseases, and why the use of spices is prominent in meat, which is particularly susceptible to spoiling. Spices are sometimes used in medicine, religious rituals, cosmetics or perfume production [1].

Cinnamon is scientifically known as *Cinnamomum verum* and belongs to the family *Lauraceae*, which is also called sweet wood. Cinnamon is a spice, which is acquired from the inner bark of *Cinnamomum* genes trees, which is used to flavor food. Cinnamon is used mainly as an aromatic condiment and flavouring additive in a wide variety of cuisines, sweet and savoury dishes, breakfast cereals, snack foods,

tea and traditional foods. The aroma and flavour of cinnamon derive from its essential oil and principal component, cinnamaldehyde, as well as numerous other constituents.

Cinnamomum verum is sometimes considered to be «true cinnamon», but most cinnamon in international commerce is derived from related species, also referred to as «cassia». *Cinnamomum cassia*, called Chinese cassia or Chinese cinnamon, is an evergreen tree originating in southern China, and widely cultivated there and elsewhere in southern and eastern Asia (India, Indonesia, Laos, Malaysia, Taiwan, Thailand, and Vietnam). It is one of several species of *Cinnamomum* used primarily for their aromatic bark, which is used as a spice. In the United States, Chinese cassia is the most common type of cinnamon used. The buds are also used as a spice, especially in India, and were once used by the ancient Romans [2-3].

Cinnamon has been known from remote antiquity. It was imported to Egypt as early as 2000 BC, but those who reported that it had come from China had confused it with cinnamon cassia, a related species. Cinnamon was so highly prized among ancient nations that it was regarded as a gift fit for monarchs and even for a deity.

So, there are mainly two types of Cinnamon, Ceylon Cinnamon and Cassia or Chinese Cinnamon. Cassia or Chinese Cinnamon is cheaper among these varieties.

Cinnamon contains Fat, Sugar, Fiber, Calcium, Iron, Vitamin A, C, E, K and Manganese.

Major Cinnamon producing states in India are Kerala, Tamil Nadu and Karnataka.

Major Cinnamon producing countries are Indonesia, China, Vietnam, Sri Lanka, Madagascar, Timor-Leste, Grenada, Sao Tome and Principe, Dominica and Seychelles.

Major Cinnamon exporting countries are Sri Lanka, Indonesia, China, Vietnam, Netherlands, United States of America, France, Germany, Madagascar and India.

Major Cinnamon importing countries are United States, Malaysia, Australia, United Kingdom, Romania, Egypt, Jordan and China.

The Sri Lankan grading system divides the cinnamon quills into four groups:

- Alba, less than 6 mm (0,24 in) in diameter
- Continental, less than 16 mm (0,63 in) in diameter
- Mexican, less than 19 mm (0,75 in) in diameter
- Hamburg, less than 32 mm (1,3 in) in diameter [4].

Cinnamon bark is used as a spice. It is principally employed in cookery as a condiment and flavouring material. It is used in the preparation of chocolate, especially in Mexico. Cinnamon is often used in savoury dishes of chicken and lamb. In the United States, cinnamon and sugar are often used to flavour cereals, bread-based dishes, such as toast, and fruits, especially apples; a cinnamon-sugar mixture is sold separately for such purposes. It is also used in Turkish cuisine for both sweet and savoury dishes. Cinnamon can also be used in pickling and Christmas drinks

such as eggnog. Cinnamon powder has long been an important spice in enhancing the flavour of Persian cuisine, used in a variety of thick soups, drinks, and sweets.

Ground cinnamon is composed of around 11 % water, 81 % carbohydrates (including 53 % dietary fiber), 4 % protein, and 1% fat. In a 100 gram reference amount, ground cinnamon is a rich source of calcium (100 % of the Daily Value, DV), iron (64 % DV), and vitamin K (30 % DV). The flavour of cinnamon is due to an aromatic essential oil that makes up 0,5 to 1 % of its composition. This essential oil can be prepared by roughly pounding the bark, macerating it in sea water, and then quickly distilling the whole. It is of a golden-yellow colour, with the characteristic odour of cinnamon and a very hot aromatic taste. The pungent taste and scent come from cinnamaldehyde (about 90 % of the essential oil from the bark) and, by reaction with oxygen as it ages, it darkens in colour and forms resinous compounds. Cinnamon constituents include some 80 aromatic compounds, including eugenol found in the oil from leaves or bark of cinnamon trees.

Majority of us have been buying from the Supermarket groceries and consuming is actually not the real cinnamon but Cassia cinnamon (Table 1, Picture 1).

Table 1 – 7 Key Differences Between Ceylon Cinnamon and Cassia Cinnamon

Ceylon Cinnamon	Cassia/Chinese Cinnamon
A highly valued culinary and medicinal spice. Price can be up to 10 times more than the Cassia/Chinese cinnamon	Commonly available and very cheap. You get a bag of the sticks for less than a dollar
Contains a small, negligible amount of coumarin, a naturally occurring blood-thinning substance. Recommended for regular use, eg for correcting blood sugar level	Contains a high level of coumarin content which can be harmful for the liver and kidney when consumed daily or regularly
Tan brown in colour	Reddish dark brown
Thin and paper-like textured bark that forms multiple layers when rolled up	Uneven thick bark that forms only a few layers when rolled up
Fragile, easily broken	Tough, difficult (if not impossible) to grind to powder with an electric home kitchen grinder
Delicate, sweet with subtle notes of clove. Creates an excellent flavor profile for pastries, cakes and desserts	Pungent, full-bodied taste. Suitable for Chinese braised meat recipes
Mostly originated from Sri Lanka and used in most part of Europe	Primarily sourced from China and supplied to the USA and Asia



Picture 1– Differences Between Ceylon Cinnamon and Cassia Cinnamon

While the two species of cinnamon share certain characteristics such as antimicrobial, and in terms of inhibiting the growth of fungi and yeast, and regulating blood sugar, their contents differ much in terms of the amount of coumarin, which is a naturally occurring substance with strong blood-thinning properties [5].

The coumarin level in Ceylon cinnamon is negligibly small, while that in Cassia cinnamon is an appalling 1200 times higher. The ingestion of large amount of coumarin or consumption of coumarin over a prolonged period of time can cause serious health damages and a negative impact on the liver and kidney.

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Аванесян Г.М.

*доцент кафедри правознавства
Полтавський інститут економіки і права
Університет «Україна» м.Полтава, Україна*

ПРАВОВА ДОКТРИНА ЗОБОВ'ЯЗАННЯ У ЦИВІЛЬНОМУ ПРАВІ

У сучасних умовах розвитку ринкової економіки найбільш поширеним видом цивільно-правових відносин є зобов'язальні зобов'язання. Всі учасники цивільного обороту незалежно від того є вони юридичними чи фізичними особами вступають в майнові та особисті немайнові правовідносини, завдяки чому забезпечується динаміка цивільного обороту. Саме тому особливою є