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INFLUENCE OF THE ANATOMICAL STRUCTURE OF THE COTTON STEM ON THE SHEDDING OF BUDS

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Abstract:

The main purpose of this study was to identify some of the causes of the fall of the fruit buds of the cotton plant, especially in the form of buds, combs and flowers. The general anatomical structure of woody stems with preserved and fallen half-elements is similar: it is rich, as it was but above, in-vessel lumens, the number of which per 1 mm^2 of the area reaches 38-50 with a lumen diameter of 30 to 80 microns with a total area of 27-35% of the diameter stem.

Keywords: Cotton Plant, Anatomical Structure, Libriform, Lack Of Moisture And Nutrients, The Main Indicators In The Cultivation Of The Crop.

INTRODUCTION

When observing under a microscope the anatomical structure of the cross-section of the shed and non-shedding head stems in the cotton buds, it is clear that the wood of the plant is well developed in the cotton stalks. Wood fibres (libriform) are rich in light cavities 1 mm^2, water pipes 38-50 and their spacing is from 30 μm to 80 μm, and the anatomical cross-sectional area of the stem is 27-35%.

THE MAIN PART

It is known that in the field, from 75% to 95% of the fruit buds formed in the cotton buds are shed in the form of buds, combs, and flowers due to lack of moisture and nutrients, as well as various other reasons. Reducing this negative trend is of great practical importance and is one of the key indicators in growing high cotton yields. Numerous scientific studies have been conducted on the process of fertilization of cotton plants and the shedding of fruit buds [1-7].

Finding measures to prevent and reduce the loss of cotton and fruit buds is an urgent task in science, and a clear solution to this problem in cotton is expected by scientists and experts. Analyzing the above, in contrast to other previous work to fulfil the task set before us, we noticed differences in the anatomical structures of the specimens taken from the 5–6 joints of the fruit stem and the head stem, which were preserved by the spindle band from the cotton stalk [8-13]. According to A.Dariev's method, samples of 0.5-1 cm from the head stem and fruit stem of the cotton plant were taken from the log section and placed in a 1:1:1 mixture of glycerin, ethyl alcohol and frozen acetic acid to soften them. It was then kept in a thermostat at 70 °C for one week. In Ikrotom preparation thin incisions were made, the cut sample was stained with a solution of saffron in water, and temporary working preparations were prepared [14-16].

The samples were examined under an MBI-3 microscope, magnified to 11x16, prepared on an objective 16x eyepiece 11x RA-6 (1.5x camera) and the differences in the anatomical structure of the samples were studied. When we observe the anatomical structure of the cross-section of the head stalks with and without shedding of fruit nodules in the cotton bush under a microscope (Fig. 1-2), it is observed that the mechanical textures of the wood are similar to each other. When we look closely, it is clear that the wood is well developed at the base of the head of the cotton, where the fruit notes are preserved [15-18].

Wood fibres (libriform) are rich in light cavities 1 mm2, water pipes 38-50 and their spacing is from 30 μm to 80 μm, and the anatomical cross-sectional area of the stem is 27-35%.

Part of the interval of the woody parenchyma was in the form of single-individual lying circles, mainly observed in the form of 2-5 to 8-14 chains (Fig. 1-2). Wood fibres are libriform, and water pipes are up to 264 μm long, with a sidewall thickness of more than 210-250 μm and 2.2-2.8 μm. Wood fibre (libriform) strengthens the thick-skinned conductive bond. This, in turn, may be inextricably linked to cultivation technology, especially with irrigation and inter-

row processing factors. It should be noted that the differences in the anatomical structure of the head stem of the cotton in 5-6 joints were not significant.

It should be noted that the scientific observations of Yuldashev S.Kh. and Nazarov M (1976) show that this indicator was significantly influenced by the feeding area of cotton. For example, when cotton is planted too thick or when seedlings are planted more than the norm per hectare, due to lack of light on the main stem, the conductive tubes in the tissue stretch and do not grow in width, resulting in more than 90% of the fruit in the cotton buds.

It is known from the anatomical structures of the samples taken from 5-6 joints of the main stem that the preservation and shedding of fruit nodes in the cotton stalks are observed, especially with the implementation of agro-technological measures during the growing season. If we pay attention to the anatomical structures in Figures 3 and 4, we see that the epidermis, woody, was centric parenchyma, radiant parenchyma, fiber open structure of the main stem (Fig. 1) of the plant holding the fruit nodules are restored [18-21].

It was found that the structure of the radiant parenchyma on the surface of 1 mm^2 of the shed stem was 5–30 bundles with a diameter of 30–40 μm in the anterior cortex, 49–65 μm in the posterior stem, or 28% in the fruit band that shed the stem, and 32% in the non-shedding fruit node (Figure 4).

Thus, it should be noted from our observations that the causes of shedding of fruit nodules in the gooseberry require a deeper study of the internal anatomical structure of the main stem and its 5-6 joints, as when studying the state of shedding of fruit nodules located in the upper layers of the stem (e.g. in the above 4.5 tiers - comparing the anatomical-physiological relationship of the state of metabolism allows us to draw detailed conclusions about the causes of shedding of fruit nodules in the cotton stalk. It should be noted that in the wild species of cotton the mechanical texture of wood - libriform forms the bulk of the wood part [22-26]. This pattern is not always observed in the cotton plant samples studied, the fruit nodules are preserved, the woody stem is well developed and makes up 42% of the surface in the cross-section of the stem, and in the cotton stalk stalks where the fruit nodes are shed, the woodiness is relatively less developed, 25-30%.

The walls of the libriform cells are relatively thin in pairs, sometimes triangular and cross-shaped, located only on the radial walls of the libriform cells. The length (size) is the same around 900 - 1100 μm.

In all the plants studied, the wood parenchyma is directly connected to the vascentric, ie conducting fibre joints, the initial position in the wood parenchyma is 1 row around the conductive fibres of young vascentric parenchyma cells, and the next cells are 1-2 rows. Sometimes libiform cells also enter the ring of wood cells. In general, the cotton nodules appear to be richer in woody parenchyma than the xylem portion of the head stem. In addition to the vascentric parenchyma, there is also the metatracheal parenchyma (not bound by conductive fibres), which is well visible in plant stems where fruit nodules are shed. The cells of the woody parenchyma are usually single or double, with a diameter 1.5 times larger than the diameter of the lebiriform-shaped cells [16-20]. In the cross-section of the young wood, the cells of the parenchymal parenchyma are arranged in 1 - 2 rows, and the width (intercellular space) is equal to the diameter of the narrow or conductive fibre interval. At the base of the head of the cotton, where the fruit nodules are not shed, and in the wood formed, there are 2 - 3 (4) rows of light-coloured parenchymal cells. The fruit nodules are 3 to 5 rows in the stem structure of the shed cotton stalk, the width of which is wider than the range of conductive fibres, sometimes larger than the diameter of the interstitial parenchyma cells of the stem of equal diameter.

The cells of low-yielding plants that have dropped fruit buds are rectangular and vertically elongated. The Nursimon parenchyma does not exceed 15 rows. In the anatomical structure of the stem and fruit band of the studied plants, the wall thickness of the cells of the parenchymal parenchyma is 0.4 - 0.6 μm, sometimes separate large crystals can be seen. The following conclusions were drawn from the study of the anatomical structures of stem and fruit band specimens of plants with shedding, partially shedding, and shedding of fruit nodes.

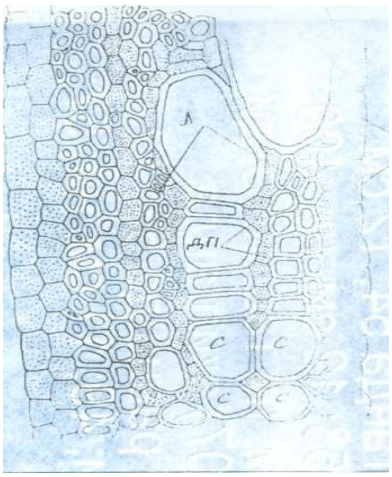

Figure 1. The cross-sectional structure of the head stem of the cotton, where the harvested elements are preserved.

E- Epidermis, Ё -Wood, ЁП- woody parenchyma.
НП a light-like parenchyma

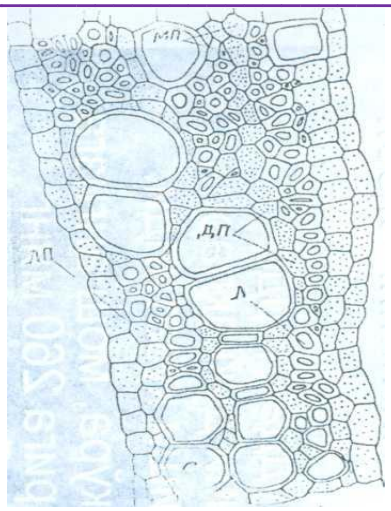

Figure 2. The cross-sectional structure of the head stem of the spilt cotton with the elements of the crop spilled.

E- Epidermis, Ё -Wood, ЁП- woody parenchyma.
НП a light-like parenchyma

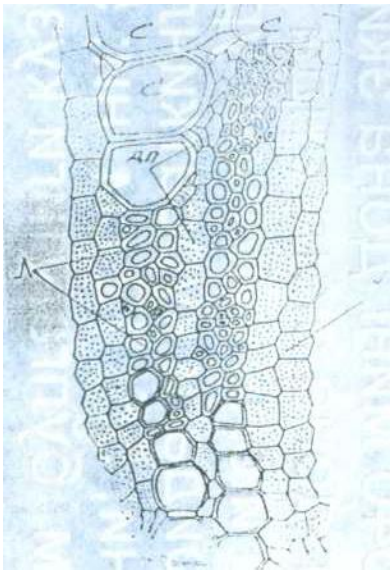

Figure 3 The cross-sectional structure of the cotton fruit band in which the harvest elements are preserved.

E- Epidermis, Ё -Wood, ЁП- woody parenchyma.
НП a light-like parenchyma

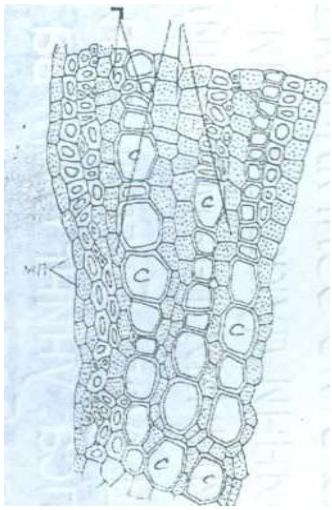

Figure 4. The cross-sectional structure of the fruit band of the cotton spilled with the harvest elements.

E- Epidermis, Ё -Wood, ЁП- woody parenchyma.
НП a light-like parenchyma

In the anatomical structure of the specimens taken from 5-6 joints of the stalk of the fruit buds and the stem of the head, in the second evening wood is formed conductive fibrous fragments with wide spaces of light parenchyma. In the wood of the fruit stem, however, there are mainly gaps. As a result of the anatomical structure of the stalk and 5-6 joints of the head stem, the mass fraction of the parenchyma and conductive fibres is larger than the structure of the stem with the fruit and nodules shed.

In group 2 plants, the formation of mechanical tissue is more rapid than the formation of wood parenchyma. The above situation can be explained as follows:

a) diversity of seed quality;
b) the impact of agro-technical measures;
c) the effect of both conditions;

Hence, it is necessary to create optimal agrophysiological conditions for the cotton plant, which prevent the shedding of fruit buds, and enhance the process of parenchyma.

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