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The quality indicators of beetroot materials and analysis of the possibilities for its medical application

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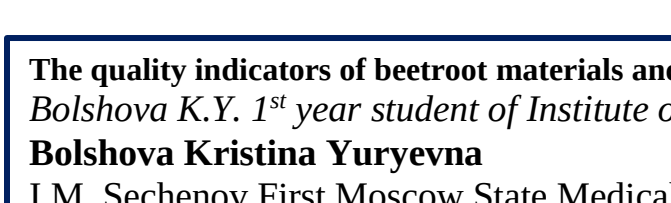
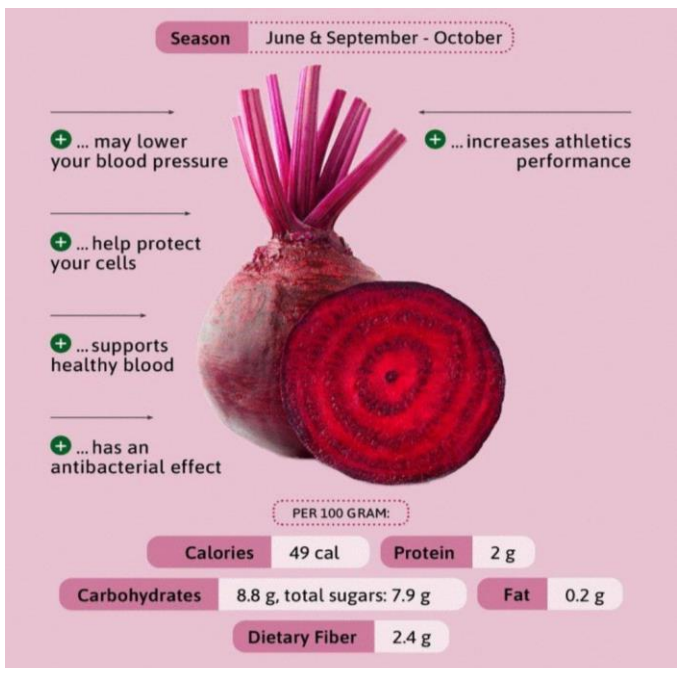
Introduction: Currently, due to the epidemiological situation and the problem of tightening sanctions, the issue of the production of inexpensive, but effective medicines is becoming more relevant than ever. Therefore, primarily, it is worth paying attention to the use of herbal medicinal raw materials, due to the low cost and high effectiveness in multiple fields of medicine and pharmacy. An example of such raw materials is Beetroot (Beta vulgaris L.)

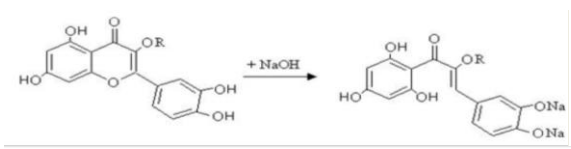




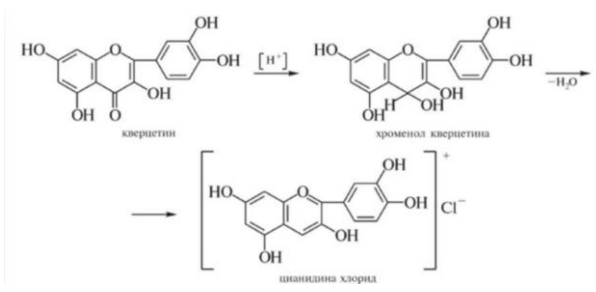
The aim of the work: to conduct a pharmacognostic analysis of the qualitative characteristics of beets to determine the authenticity of raw materials.

The relevance of the work is related to the possibility of expanding the raw materials and improving the efficiency of the production of medicines and, primarily, those that have an import-substituted orientation.

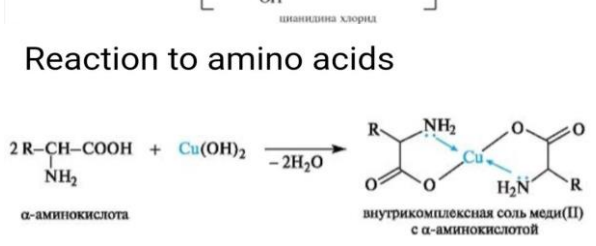
1. Changing the color of extracts with the addition of NaOH ----- flavonoids - disclosure of the chalconic cycle



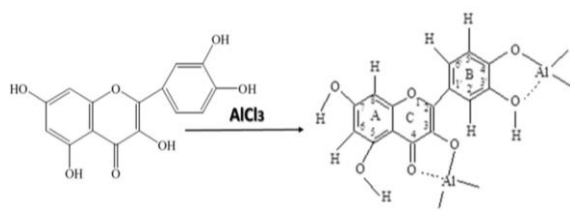
2. Cyanidin test for flavonoids - redness, formation of pink, purple, orange color



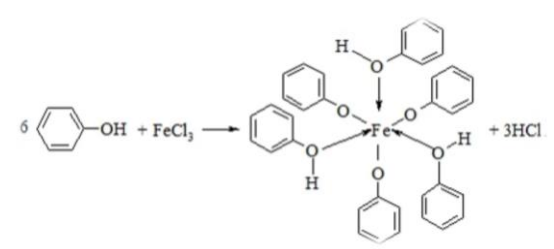
Reaction to amino acids



3. Reaction with AlCl3 to flavonoids - yellow, brownish, brown staining



With FeCl3 - tannins - formation of black-green, black-blue staining

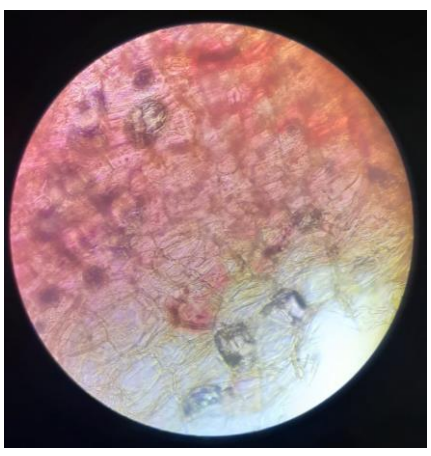


Materials and methods.

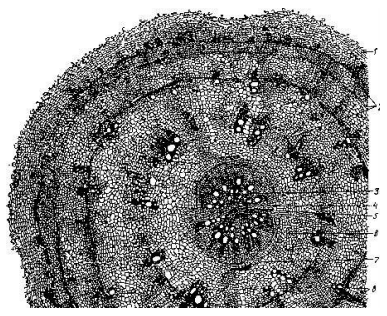
The table is compiled in accordable with General Pharmacopoeia Article

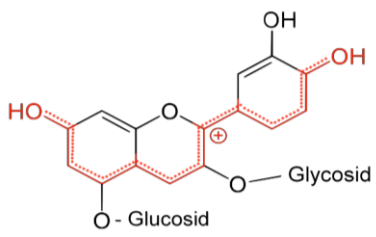
Feature	Description	Method of determination
The shape of root crops	Rounded, slightly flattened	Visually
Features of the outer surface	Smooth, even surface. The peel is spotted and durable, with a dark red matte color	Visually, tactile
Features of the inner surface	On the cut, it is almost homogeneous or with weakly pronounced banding	Visually
Size	Length: from 7 to 11 cm	Visually using a ruler
Color	From dark red to rich burgundy	Visually on a fresh plant fracture
Smell	Not felt	When breaking and rubbing between fingers
Taste	Distinctive sweet, tart	When chewing without swallowing

Microscopic analysis



1-periderm; 2 - additional cambial rings; 3 - secondary xylem; 4 - radial ray; 5 - primary xylem; 6 – cambium; 7 - primary and secondary phloem; 8 - collateral conductive beams;

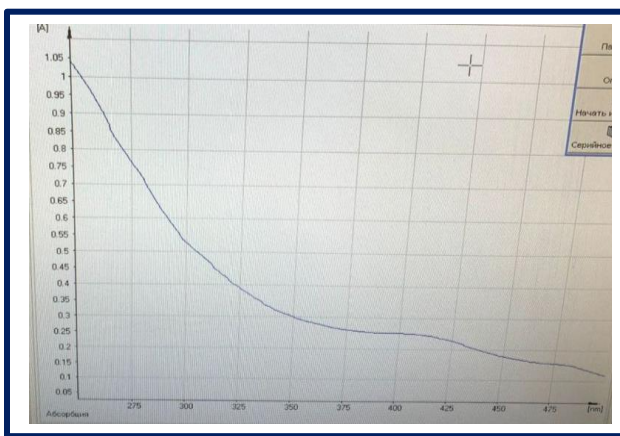




UV/VIS-Spektrum von Cyanidin-3,5-diglycosiden

Results: During the research using group reagents, such groups of BAS as flavonoids, tannins, hydroxy and amino acids were established.

The UV spectra of the extracts obtained from beet roots are characterized by the presence of the main absorption maximum in the region of 500-525 nm, which corresponds to the absorption of cyanidin-3,5-diglycoside – the main component of the anthocyanin complex.



Conclusion: A pharmacognostic analysis of the qualitative characteristics of beetroot crops was carried out to determine the authenticity of raw materials and develop regulatory documentation. Positive results allow us to consider beetroot as a promising medicinal plant raw material.