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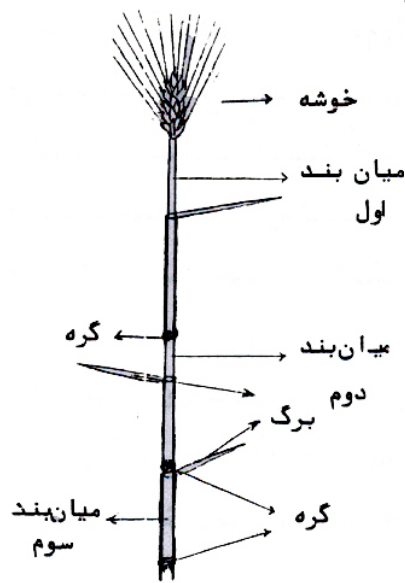
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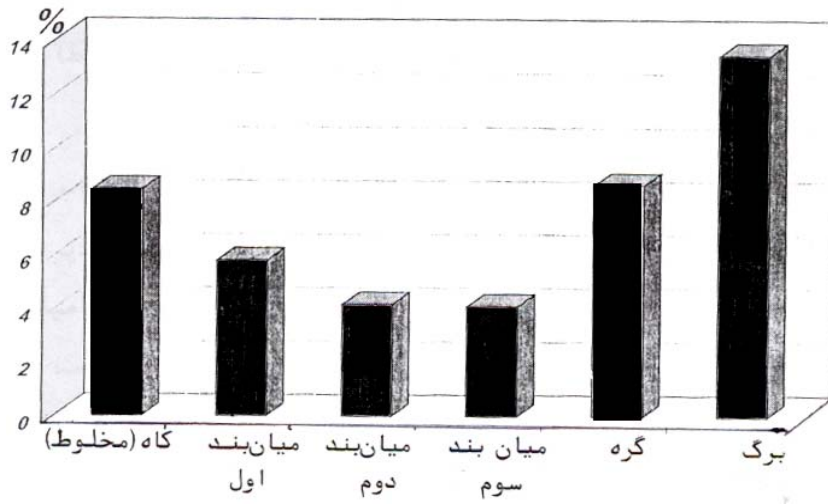
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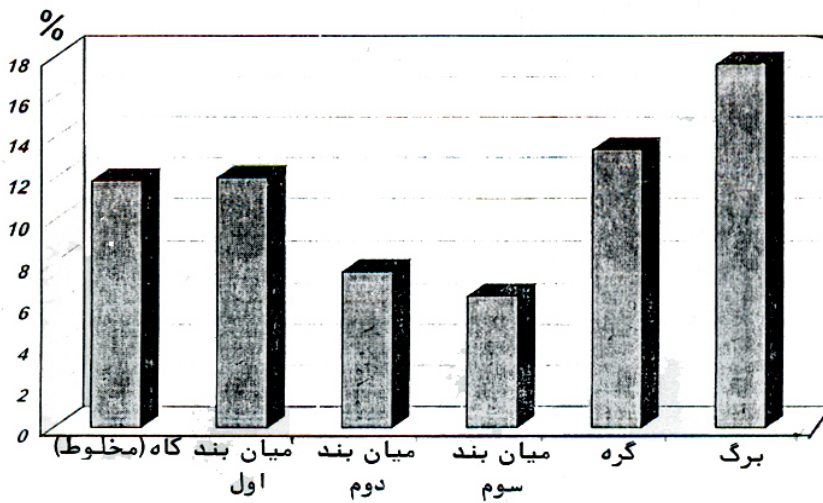
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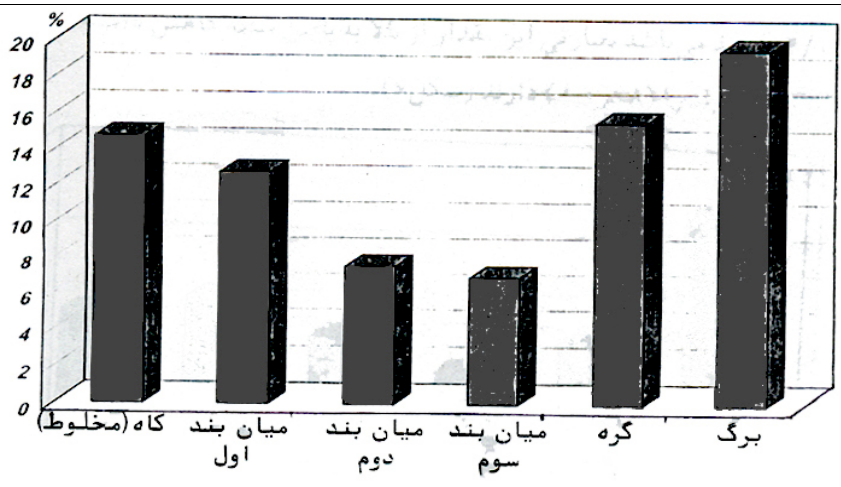
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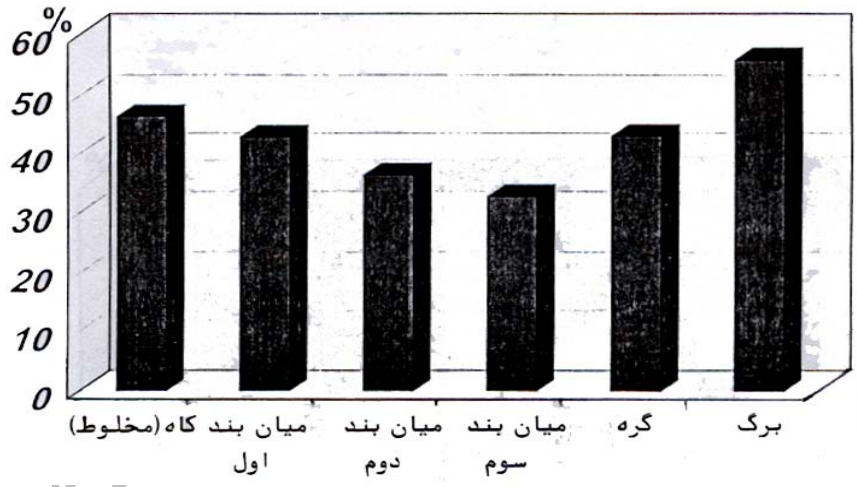
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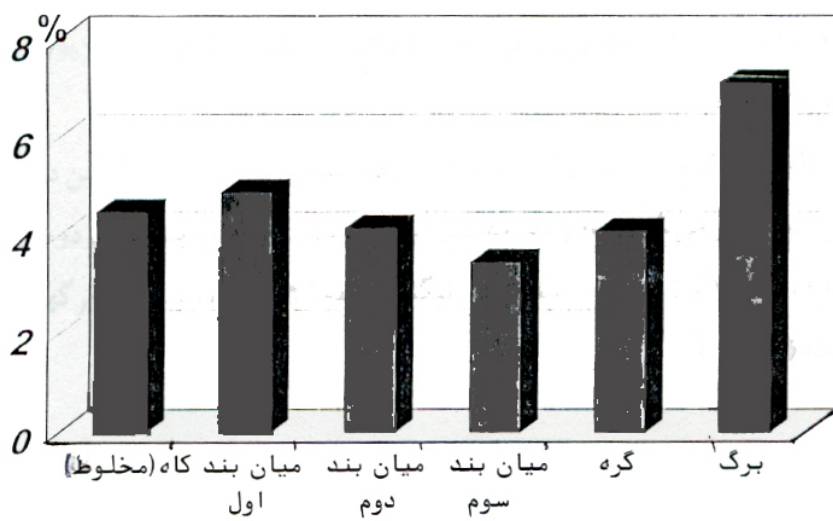
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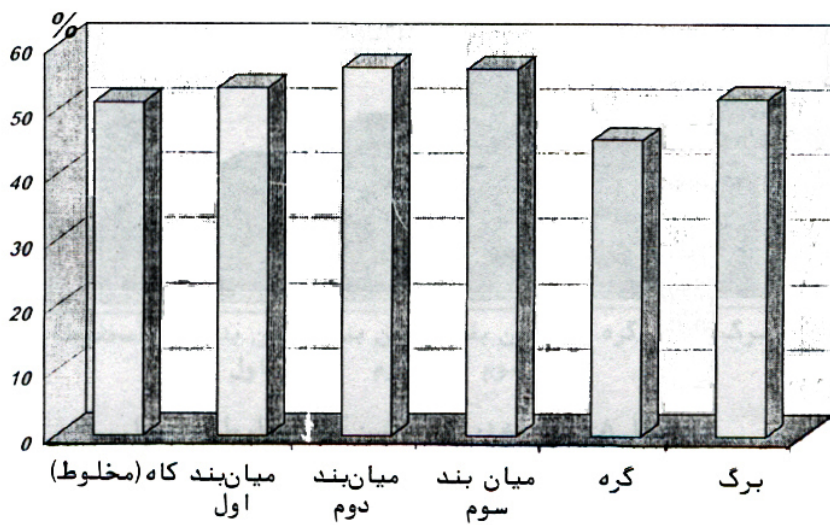
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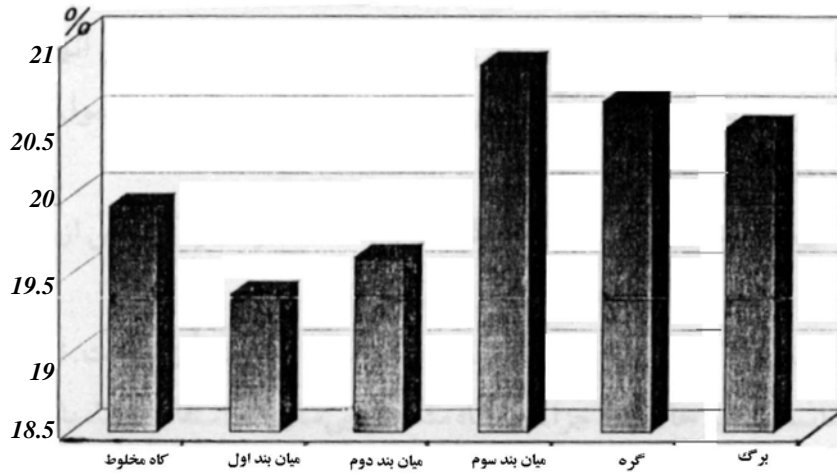


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Evaluation of Chemical Composition of Various Parts of Wheat Stalk

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Abstract

Chemical characteristics of raw material influence the development of technologies and methods of pulping. Wheat straw as an available and abundant agricultural residue has been used in some developing countries as an alternative material in papermaking, and this indicates its importance as fibrous raw material.

Wheat straw which was used in this study was obtained from the Research Farm of Faculty of Agriculture at Mashhad University. In this study, materials soluble in cold water, in hot water, in 1% NaOH, in acetone, as well as lignin, cellulose, and ash contents were determined according to TAPPI Standard Methods. Various parts of wheat stalk investigated in this study included whole straw, first inter-node (from top), second inter-node and third inter-node (bottom) of stalk, nodes and leaves separately.

The results of this study indicated that ash content, cold water solubility, hot water solubility, 1% NaOH solubility and extractive content from leaves were the highest. The amount of these materials decreased from top to the bottom of stalk. Ash content and materials soluble in cold water, hot water and 1% NaOH were higher in nodes than inter-node. Cellulose and lignin contents of stalks increased from top to the bottom.

Keywords: Wheat stalk, Inter-node, Node, Leaf, Ash, Hot water soluble, Cold water soluble, 1% NaOH soluble, Extractives, Cellulose, Lignin.

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