

## Bioelements classification

### The role of copper and iron metals in biological systems

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**Abstract:** Bioelements are chemical elements ensuring the normal life activity of organisms. Their classification was made according to chemical nature, amount in the body, biological role, location in the body. As essential elements, copper and iron are presented with its physical characteristics, occurrence on Earth, essentiality, toxicity, metabolism in the body, food sources and related pathological diseases. The classification of copper-containing proteins is presented and the most important of them hemocyanin and plastocyanin are described. The structure and base functions on iron proteins - hemoglobin, myoglobin, ferritin and hemerythrin are presented. Complex formation in a system containing iron(II), 4-nitrocatechol (4NC), 2,3,5-triphenyl-2*H*-tetrazolium chloride (TTC), water and chloroform were studied. Under the optimum conditions, the extracted complex could be represented with the formula  $(TT^+)_2[Fe^{II}(4NC)(OH)_2]$ . The geometric structure of the complex and electron distribution according to the crystal field theory is presented. The results showed that the most stable configuration is tetrahedral low-spin structure.