



EXTRACTION AND DETERMINATION OF Cd, Co, Se, V AND Ag LEVELS IN COW'S MUSCLE, LIVER, KIDNEY, LUNG, SPLEEN AND BRAIN SAMPLES

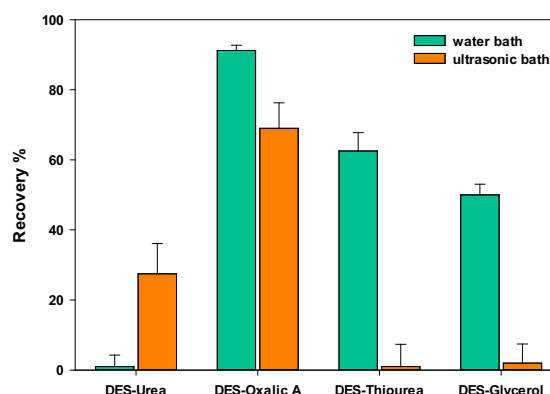
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A deep eutectic solvent (DES) consisting of oxalic acid and choline chloride was prepared and used to extract Cd, Co, Se, V, and Ag from meats. The metal levels were determined in muscle, liver, kidney, lung, spleen, and brain samples using ICP-OES. The total youden blank method was employed to eliminate the matrix effect. The order of Cd concentration in the cow's organs was spleen> brain>lung>liver>kidney>muscle. The higher and lowest concentration of Co was determined in the lung and muscle samples. Se was found in all kinds of examined cow's parts and the higher concentration was determined in the liver samples. V was not determined in the muscle and spleen samples and the abundance order in the cow's part was lung>liver>brain>kidney. Ag was determined in only one of the kidney samples.



INTRODUCTION

Living organisms need essential metals such as copper and selenium to maintain biological activities. Foods consumed by humans can contain these essential metals. However, foods can also contain non-essential harmful metals in addition to these metals. Cadmium and vanadium are some of the non-essential toxic metals that threaten human health. Silver is a non-essential metal that can accumulate in the animal and human body and exhibits toxicity.

The liver and kidney are the main organs of a cow affected by heavy metals and are consumed in many countries, including Turkey. The heavy

metals contained in consumed animal parts threaten human health. The liver is a vital organ that develops from endoblast cells and is responsible for maintaining many important functions, especially the metabolism of carbohydrates, proteins, and fats.¹ Besides essential metals, some heavy metals can bioaccumulate in animal liver tissues depending on the feeding environment and type.² The kidney is responsible for infiltrating blood and removing toxic species.³ Heavy metals can be delivered to the kidney in an inorganic and complex form with bioorganic compounds such as albumin, cysteine, and glutathione.⁴ The other organs of a cow in which heavy metals can accumulate are the lungs, spleen,

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