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Reduction of iron in the serum and liver of iron-overloaded mice using magnetotactic bacterium *Magnetospirillum gryphiswaldense* MSR-1**Hatami Giklou Jajan Leila, Karbakhsh Reza, Ghorbani Masoud and Hosseini Seyed Nezamedine**
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Magnetospirillum gryphiswaldense MSR-1 are a type of magnetotactic bacteria that are capable of forming magnetosomes, which are membrane-bound, nanometer-sized particles of the mineral magnetite (Fe_3O_4). Iron is an essential element for most life on Earth, including humans, but if the level of iron in body increases, it can cause many disorders. The focus of this research was to determine whether MSR-1 bacteria have an effect on the concentration of iron levels in mammalian cells in vivo. To examine this effect, two different conditions were examined, mice overloaded with iron and mice without iron overloading. For the iron overload, condition female BALB/c mice were given intraperitoneal injections of iron-dextran for four consecutive weeks; after which the injections were ended and the iron in the mice was allowed to equilibrate for 15 days. The MSR-1 bacteria were injected into iron-overloaded mice. The animal was then sacrificed the spleen, liver and lymph nodes were removed. The viable bacterial number was determined in these organs by measuring the colony-forming units (CFUs) for at least 96 hours. Serum iron levels were tested using commercial kits and the total iron levels in the liver were measured by wet ashing and analyzed for total iron excreted using flame atomic absorption spectrophotometer for 10 days. Based on the number of CFU of bacteria clearance from the lymph nodes, spleen and liver, MSR-1 cells have the ability to decrease iron values in iron-overloaded mice, and therefore inhibit the possible damage to different body organs caused by iron overloaded.

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