

## **Mannans from Yeast *Kluyveromyces marxianus* with Copper and Ferrous Chelating Activity**

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**Introduction:** High levels of copper and iron in organism may promote the development of disorders such as Wilson's disease and hemochromatosis, respectively. Iron and copper chelators are used in treatment of these disorders. Polysaccharides from different sources such as fungi and yeasts have shown several biological activities, including copper and ferrous chelating activity. However, there is no data about polysaccharides from yeast *Kluyveromyces marxianus* CCT7735. **Objective:** The aim of this study was to evaluate the copper and ferrous chelating activities of *Kluyveromyces* polysaccharides. **Materials and Methods:** After alkali extraction (3% NaOH/70 °C/6h), the polysaccharide-rich extract from cell wall of yeast was fractionated into four fractions (GM1; GM2; M1; M2) using ultrafiltration with Amicon® filters (Millipore). The monosaccharide composition was determinate by HPLC. Both *in vitro* chelating abilities were determined accordingly to Melo et al. (Molecules;18:14543, 2013). **Results and Discussion:** GM1 (mannose:glucose 1:1) and GM2 (mannose:glucose 1:0.1) are two different glucomannans, whereas M1 and M2 are two different mannans. These mannans are weak copper chelators (~ 20% at 2.0 mg/mL) whereas the glucomannans showed high activity (~70%), especially GM1, since this high activity was obtained at minimal concentration tested (0.25 mg/mL). All polysaccharides showed ferrous chelating activity around 90%. Again, GM1 was the most potent sample; it showed 90.5 ± 0.84% at 0.1 mg/mL. This dose was five times less than that used with GM2 (the second most potent polysaccharide) in order to obtain the same result. **Conclusions:** GM1, among the *Kluyveromyces* polysaccharides, has the most potent copper and ferrous chelating abilities and we intend to evaluate its activities in *in vivo* models.

Key words: glucomannan, polysaccharide, antioxidant activity.

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