***Oral presentation abstract*: The use of polysaccharides in food applications: unveiling the potentials and limitations**

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Polysaccharides, bio-sourced polymers with desirable attributes such as biodegradability, non-toxicity, and film-forming ability, emerged as promising candidates for use in the food industry. In the present study, 9 polysaccharides from different natural sources (Hydroxypropyl methylcellulose (HPMC), Methylcellulose (MC), Hydroxypropyl cellulose (HPC), Low-methoxyl pectin (LMP), Sodium alginate (SA), Kappa-Carrageenan (KC), Chitosan (CHI), Pullulan (PUL) and Cationic starch (CS)) were investigated. These polymers were subjected to different characterizations including their rheological properties, barrier properties against oxygen, water vapor and light, mechanical properties, as well as stability upon storage. The findings indicate that, HPMC, MC and CHI exhibited high viscosity compared to the other tested polymer solutions. Except for cellulose derivatives (HPMC, MC, and HPC), 6 other biopolymers exhibit good oxygen barriers compared to conventional plastics. However, all of them display sensitivity to water vapor. The 12-month aging test revealed that the barrier properties of all tested polymers remained stable. In terms of mechanical properties, cellulose derivatives were able to form flexible films with lower Young’s modulus and higher elongation than the others. Regarding the light barrier properties, all tested polysaccharides showed good transparency. Especially, LMP exceptionally blocked 98 % of UV light through its film. These characteristics suggest a significant potential for these polymers to serve as food additives and alternative food packaging materials.

***Keywords:*** *Food additives, biodegradable polysaccharides, barrier properties, film aging*

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