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## Antioxidant and anticancer effect of polysaccharides from Orchis mascula and its structural elucidation

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**P**olysaccharides an important natural compounds mainly from plant, microbe and animal sources, play an crucial role in many molecular processes affecting eukaryotic biology and diseases and demonstrate varied biological activities such as antitumor, immune-stimulant, anticancer, anti-complementary, anti-inflammatory, anticoagulant, hypoglycemic, antiviral and immunological activities, which makes them serviceable in many fields together with food cosmetics and biomedicine. The polysaccharides were fractionated through ion-exchange and purified using gel filtration column chromatography. The chemical composition of the polysaccharide showed carbohydrates (91.5%), protein (0%), ash (13.01%), moisture (4.03%), carbon (39.21%) and hydrogen (5.87%). Molecular weight of the polysaccharides was 48kDa. The Sugar composition and structural feature of the polysaccharide was studied through HPLC, FT-IR and 1H-NMR spectral analysis the polysaccharide showed total antioxidant activity (21.81-72.1% at 50-250 µg/ml), DPPH radical scavenging activity (23.5-77.98% at 10-160 µg/ ml), hydroxyl radical scavenging activity (13.01-71.43% at 25-125 µg/ml), superoxide radical scavenging activity 927.01-68.27 at 50-250 µg/ml) and reducing power (0.405-1.789% at 10-160 µg/ml). The polysaccharide exposed anticancer activity against A549 lung and AGS human gastric carcinoma were 7.23-55.78% and 8.11-59.03% at 50-250 µg/ml. Proper biological activities of the polysaccharide, possible utilization in the Pharma industry.

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