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**Structural characterization and antidiabetic potential of a novel heteropolysaccharide from *Grifola frondosa* via IRS1/PI3K-JNK signaling pathways**

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**Highlights:**

- A novel heteropolysaccharide named GFP-W isolated from *Grifola frondosa*
- GFP-W characterized by <sup>1</sup>H-, <sup>13</sup>C-, <sup>1</sup>H-<sup>1</sup>H COSY, <sup>1</sup>H-<sup>13</sup>C HSQC, and <sup>1</sup>H-<sup>13</sup>C HMBC NMR
- GFP-W possessed β-D-GlcpA→, 1,2,6-α-Gal, →2)-α-Manp→, and →3)-α-L-Fucp-(1→ units

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