Another similar work has been published on the isolation of polysaccharides from *Inonotus obliquus* (Xu et al., International Journal of Medicinal Mushrooms, Volume 12, Issue 3, 2010, Pages 235-244.

**Response:** Our experiment is completely different from the work by Xu et al. Firstly; the method used to extract and purify polysaccharide from *Inonotus obliquus* is different. TPP is a new, efficient and safe extraction method that has never been applied to extract and purify polysaccharides from edible fungi. Although we also use response surfaces to optimize the conditions, we use hot water to extract crude polysaccharide, and use TPP to purify polysaccharide of *I. obliquus*. The polysaccharide content was estimated to be 57.17% after TPP (including dialysis). Xu et al. use distilled water (83°C) to extract polysaccharide of *I. obliquus*, and use 4 volumes of 95% ethanol to precipitate crude polysaccharides. The polysaccharide content from dry matter of culture broth (DMCB) of *I. obliquus* was estimated to be 41.23 mg/g by the method of Xu et al. Secondly, experimental materials are different. Xu et al. studied the dry matter of culture broth (DMCB) of *I. obliquus* in submerged culture, and we studied fruiting body of *I. obliquus*. Thirdly, we focus on the characteristics polysaccharides from *I. obliquus* and free-radical scavenging abilities, antioxidant activities and immunological activity *in vitro*, while Xu et al. concerned on antihyperglycemia, anti-lipid peroxidation and anti-oxidation effects in alloxan-induced diabetic mice.

**Point 1:** At several points in the text, write (NH4)2SO4 instead (NH4)2SO4. Please correct them.

**Response 1:** We have corrected “(NH4)2SO4” to “(NH4)2SO4”.

**Point 2:** Line 197. Please comment on the wavenumbers of FTIR spectrum (Fig. 4b).
**Response 2:** Line 197, we inserted “Fig.5b showed that purified IOPS has a typical characteristic absorption peak of polysaccharide, a strong -OH stretching vibration peak at 3223 cm$^{-1}$, and a strong C-H stretching vibration peak of -CH$_3$, -CH$_2$, -CH at 2963 cm$^{-1}$, a C=O asymmetric stretching vibration peak at 1643 cm$^{-1}$, CH variable angle vibration peak at 1419 cm$^{-1}$. Three absorption peaks at 1088, 775, 615 cm$^{-1}$ indicated a pyranose characteristics of the ring.”

**Point 3:** Line 235. i) How the powders were prepared? Please details; ii) 95 % v/v in water. Please correct it.

**Response 3:** We have rewritten this section according your advice. “Fresh air-dried *I. obliquus* fruiting bodies were ground to powder and passed through a 10-mesh sieve. Powder of *I. obliquus* (50.0 g) was suspended in 500 mL of 95% ethanol in distilled water (v/v) and extracted for 1h at the frequency of 40 KHz using a SB25-12D ultrasonic generator (Ningbo Scientz Biotechnology Co., Ltd, Ningbo, China.) at room temperature to remove lipids. This operation was repeated three times. After filtration, the residue was air-dried at room temperature, suspended in 20 volumes of distilled water and extracted twice for 2 h at 100°C. The liquid extracts were combined, centrifuged (26,000 × g, 20 min, 20°C), and the supernatant was concentrated to 300 mL under vacuum that was labelled as the crude extract.”

**Point 4:** Line 236. Please provide the details of the ultrasound device. During the extraction the temperature was kept constant and what was the value?

**Response 4:** Powder of *I. obliquus* (50.0 g) was extracted with 500 mL of 95% ethanol for 1h at the frequency of 40 KHz using a SB25-12D ultrasonic generator (Ningbo Scientz Biotechnology Co., Ltd, Ningbo, China.) at room temperature to remove lipids.

**Point 5:** Line 238. What are the combined extracts? Did not alcohol evaporate at the drying stage? Describe in detail the extraction with water. I think the temperature was too high and there were chemical changes. This part should be rewritten more clearly and in more detail.

**Response 5:** After 95% ethanol extraction to remove lipids, the residue of *I. obliquus* fruiting bodies was air-dried at room temperature, suspended in 20 volumes of distilled water and
extracted twice for 2 h at 100 °C. “Combined extracts” means that the two times liquid extracts were combined.

About “Did not alcohol evaporate at the drying stage?” there is a clerical error here. Yes, alcohol has evaporated at the drying stage; we have corrected it.

We have rewritten this section about the detail of water extraction of crude polysaccharide. As you know, extracting polysaccharides (the cell walls of plants and fungi) using hot water 2-4 h at 100 °C is very common method. These complex polysaccharides are not very digestible, so there are a few chemical changes on structure of polysaccharide 2-4 h at 100 °C. Therefore, the traditional hot water extraction method is the most commonly used method for extracting the cell walls polysaccharides of plants and fungi. ["Dietary Reference Intakes for Energy, Carbohydrate, fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients) (2005), Chapter 7: Dietary, Functional and Total fiber". US Department of Agriculture, National Agricultural Library and National Academy of Sciences, Institute of Medicine, Food and Nutrition Board.] Many documents used this method. For example, Xu et al. extracted the roots of P. ginseng (500 g) polysaccharide from 7.0 L distilled water at 100 °C for 4 h. [Zhang X, et al. Total fractionation and characterization of the water-soluble polysaccharides isolated from Panax ginseng C. A. Meyer. Carbohydrate Polymers, 2009, 77(3):544-552]. Fan et al. obtained crude polysaccharide from C. comatus mycelium (325.15 g) by extraction 4× with 10 vol of distilled water at 100 °C for 1 h. [Fan JM, et al. Structural elucidation of a neutral fucogalactan from the mycelium of Coprinus comatus. Carbohydrate Research, 2006, 341:1130-1134.]

**Point 6:** Line 247. Please details for “reduce pressure"

**Response 6:** Here we changed “under reduced pressure” to “under vacuum at 45°C”.

**Point 7:** Line 300. Not FeCl₃•6H₂O but FeCl₃.6H₂O

**Response 7:** We have corrected “FeCl₃•6H₂O” to “FeCl₃.6H₂O”.