

## Hydrothermal Green Synthesis of MoS<sub>2</sub> Nanosheets for Pollution Abatement and Antifungal Applications

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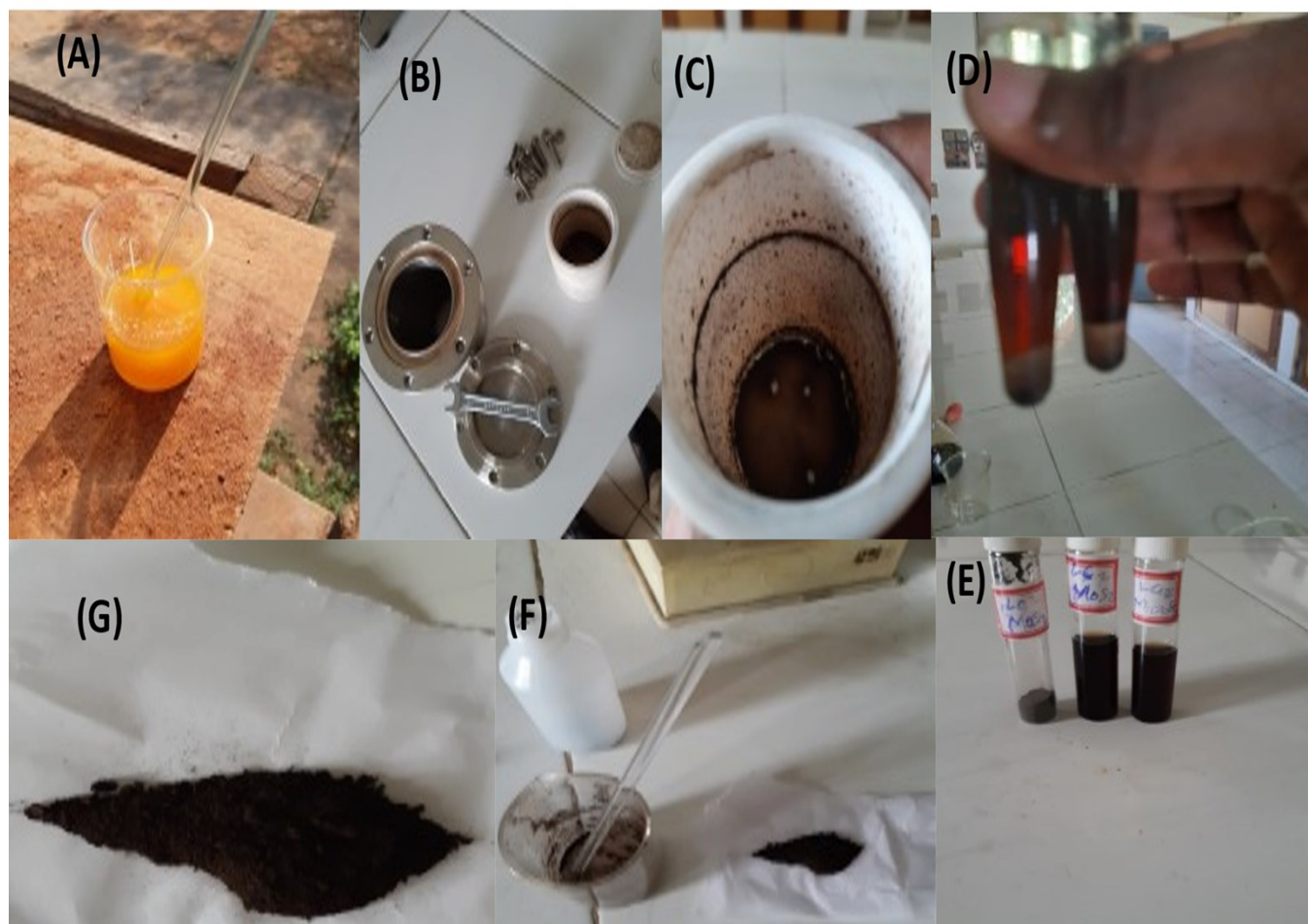
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### **SI. 1. Antifungal activities of MOS<sub>2</sub> nanosheet.**

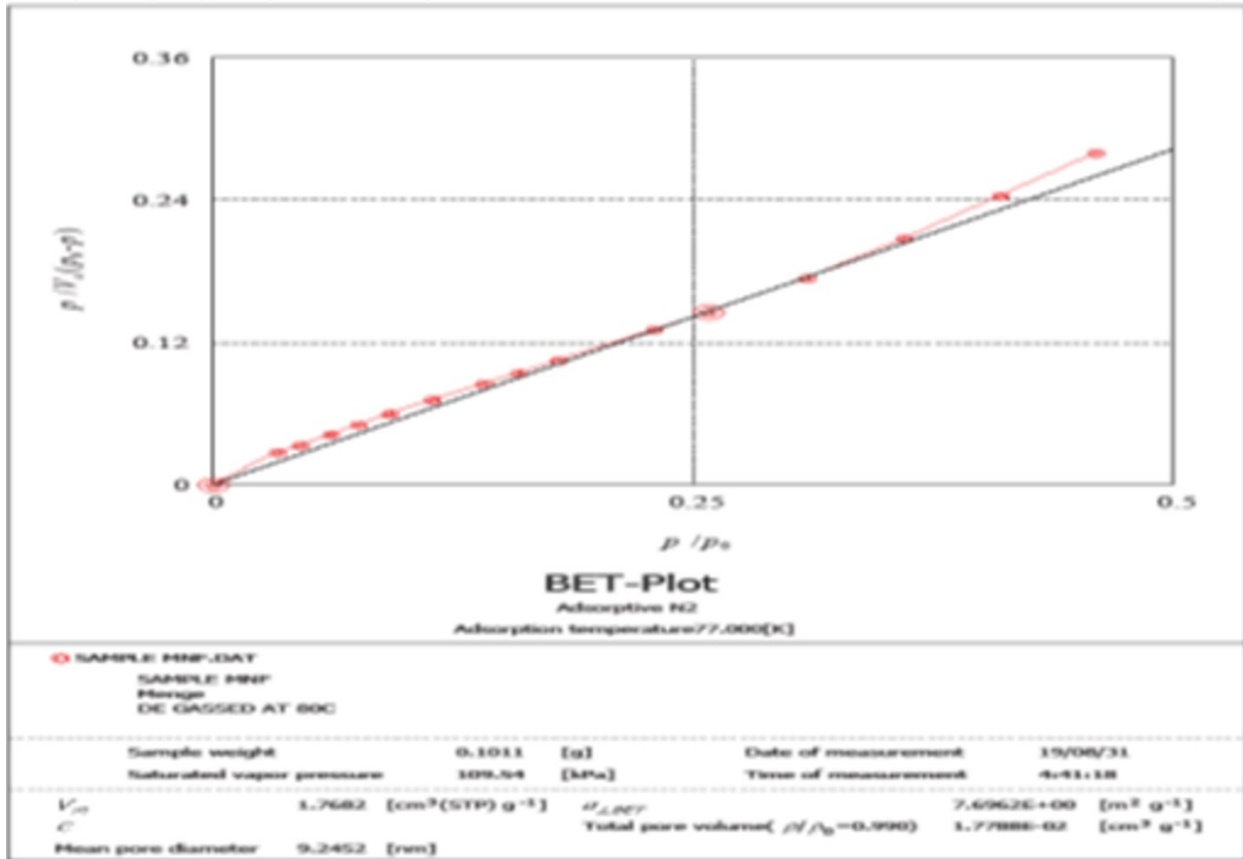
The antifungal activity was carried out by employing 24 h cultures with given compounds by using the Agar-Well diffusion method. The medium (Potato Dextrose Agar) was sterilized by autoclaving at 120 °C (15 psi) for about 30min. About 20 ml of the medium was seeded with the respective strains of Fungi and transferred aseptically into each sterilized petri dish. The plates were left at room temperature for solidification. Each plate, a single well of 6 mm diameter was made using a sterile borer. The test compounds were freshly reconstituted with suitable solvents (distilled H<sub>2</sub>O) and tested at various concentrations (1, 2 and 3). The samples and the control (distilled H<sub>2</sub>O) along with standard (Fluconazole) were placed in 6 mm diameter well. Petri plates were incubated at 28 ± 2°C for about 24 hrs. Standard with a concentration of 5 µg/ml was used as a positive control.



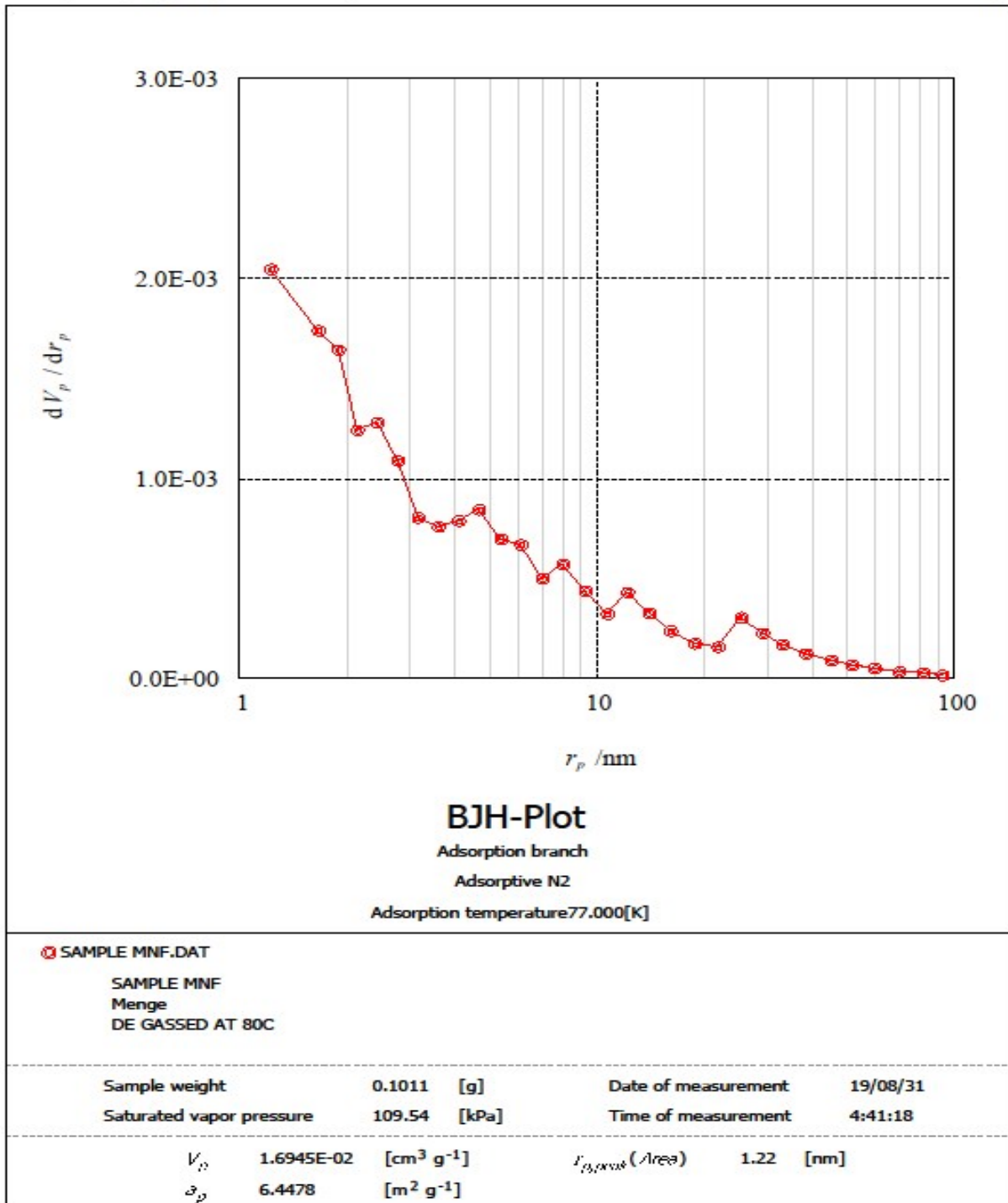
SI. Figure 1 Synthesis of  $\text{MoS}_2$  nanosheets

### SI.2. Surface area and pore size analysis

The surface area and pore size analysis of  $\text{MoS}_2$  NSs were determined from the  $\text{N}_2$  adsorption data. The surface area of  $\text{MoS}_2$  NSs was recorded using BET method (SI. Figure 2). The specific surface area of found to be was found to be  $7.69 \text{ (m}^2\text{g}^{-1}\text{)}$ . Similarly, the mean pore diameter determined using BHJ plot (SI. Figure 3) was  $1.2 \text{ nm}$ . This moderate surface area and pore size of the photocatalyst enhance the adsorption of dye, which in turn facilitate the photocatalysis turn over.



SI Figure 2 : The Brunauer-Emmett-Teller (BET) plot of MoS<sub>2</sub> nanosheet



SI. Figure 3 The Barrett-Joyner-Halenda (BJH) plot of MoS<sub>2</sub> nanosheetnm