CLAIMS

1. A method for preparation of amorphous silica from biomass containing amorphous silica, the method comprising: pyrolyzing the biomass under anaerobic conditions to yield pyrolysis gas and solid residues, collecting the pyrolysis gas, and calcining the solid residues under aerobic conditions to yield amorphous silica;

wherein the method further comprises step A: acid-washing and drying the biomass before the pyrolysis of the biomass, or step B:acid-washing and drying the remains of the biomass after the pyrolysis of the biomass;

wherein the acid solution is hydrochloric acid, sulfuric acid, or nitric acid, and a weight concentration thereof is between 3 and 10 wt. %;

wherein the biomass is pyrolyzed at a temperature of between 500 and 1000°C;

wherein the calcination is carried out in the presence of air, and a calcination temperature of the solid residues is between 500 and 800°C; and

wherein before the pyrolysis of the biomass or the step A , the method further comprises washing with water the biomass for removal of impurities.

~~2. The method of claim 1, **characterized in that**the biomass containing amorphous silica is rice hull.~~

~~3. The method of claim 1, further comprising step A: acid-washing and drying the biomass before the pyrolysis of the biomass, or step B:acid-washing and drying the biomass after the pyrolysis of the biomass.~~

~~4.~~2. The method of claim 1, **characterized in that** the acid-washing and drying of the

biomass comprises soaking the biomass to in an acid solution at ~~normal temperature~~less than 80°C for between 8 and 24 hours, or at between 80 and 100°C for between 2 and 6 hours, washing the biomass to be neutral, and drying the biomass.

~~5. The method of claim 1, **characterized in that** the acid solution is hydrochloric acid, sulfuric acid, or nitric acid, and a weight concentration thereof is between 3 and 10 wt. %.~~

~~6. The method of claim 1, **characterized in that** the biomass is pyrolyzed at a temperature of between 500 and 1000°C.~~

~~7. The method of claim 1, **characterized in that** the pyrolysis gas comprises CO, CO_2, H_2, CH_4, C_2H_2, C_2H_4, C_2H_6, C_3H_8, C_3H_{10}, or a mixture thereof.~~

~~8.~~3. The method of claim 1, **characterized in that**the calcination is carried out in the presence of air, anda calcination temperature of thesolid residues is between 500 and 800°C.

~~9.~~4. ~~The method of claim 1, **characterized in that** a thermal flue gas resulting from the calcination of thesolid residuesis conveyed back for the heat cycle of the pyrolysis.~~

~~10.~~5. The method of claim 1, **characterized in that** before the pyrolysis of the biomass of claim 1 or before the step A of claim 2, the method further comprises washing with water the biomass for removal of impurities.