

Figure 1 Plot showing annual relative agricultural land in the world [2].

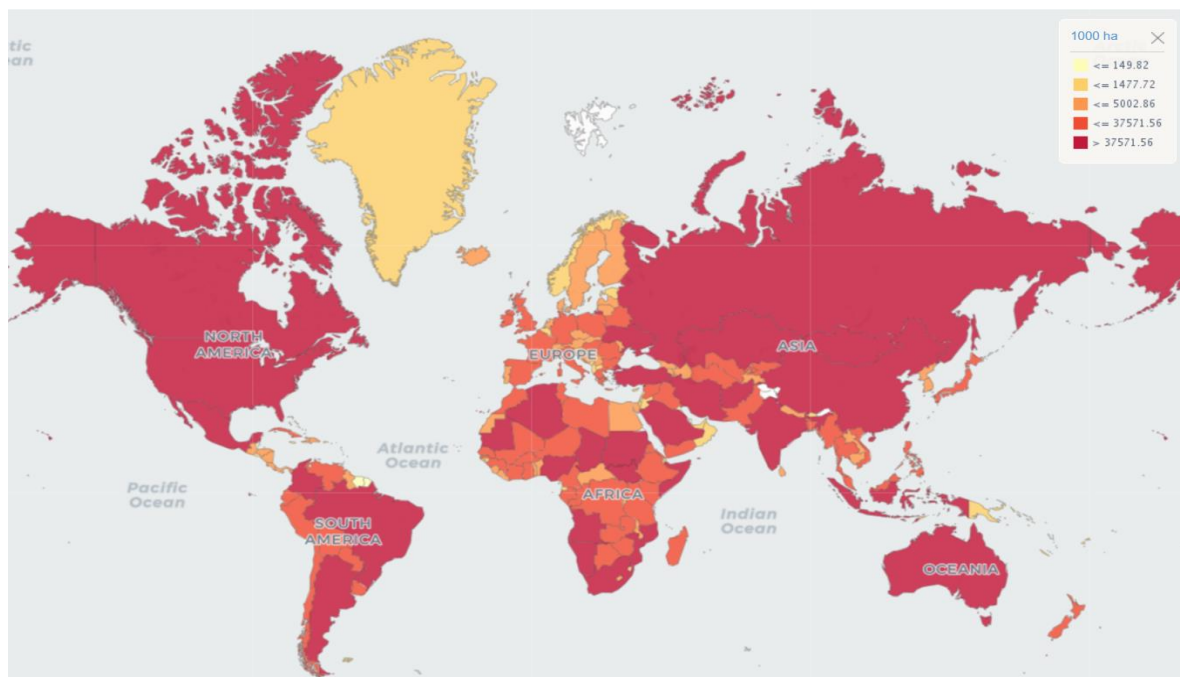


Figure 2 World map showing the relative distribution of agricultural land [2].

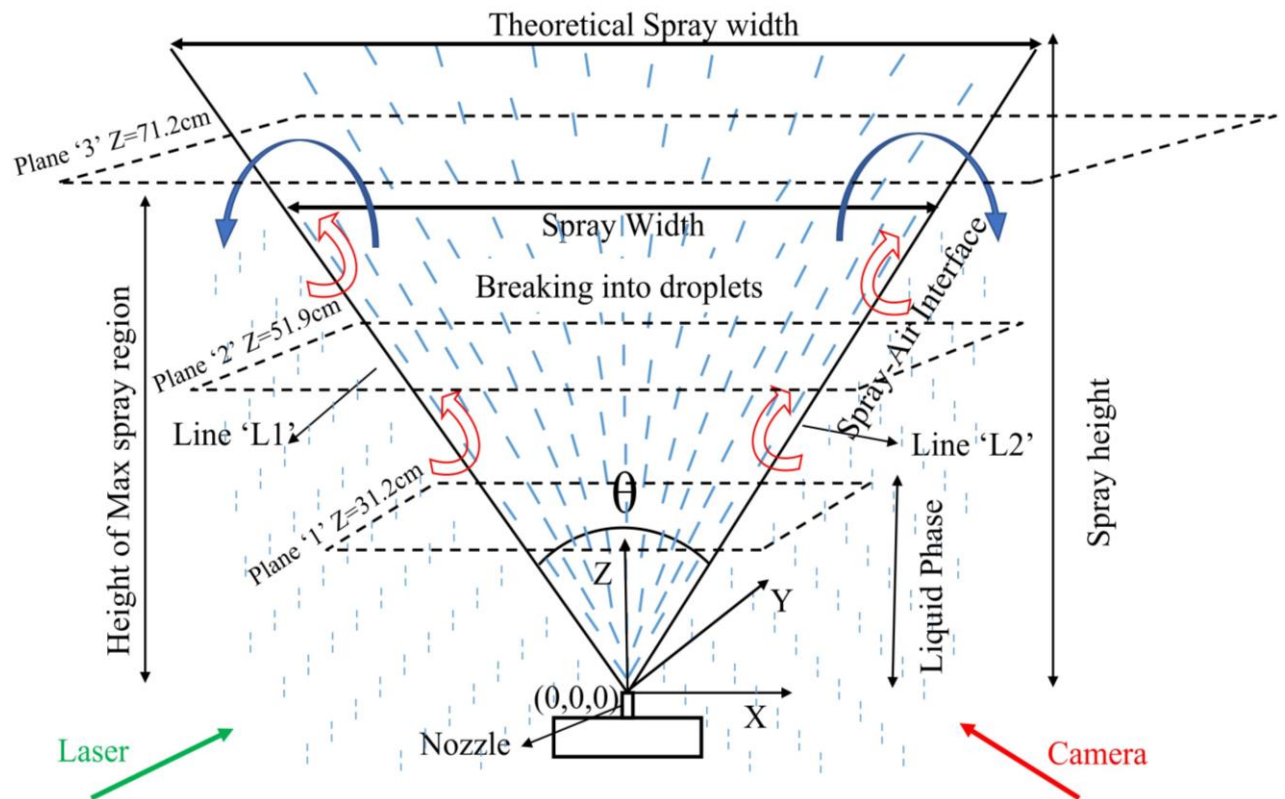


Figure 3 Schematic of the experiment setup

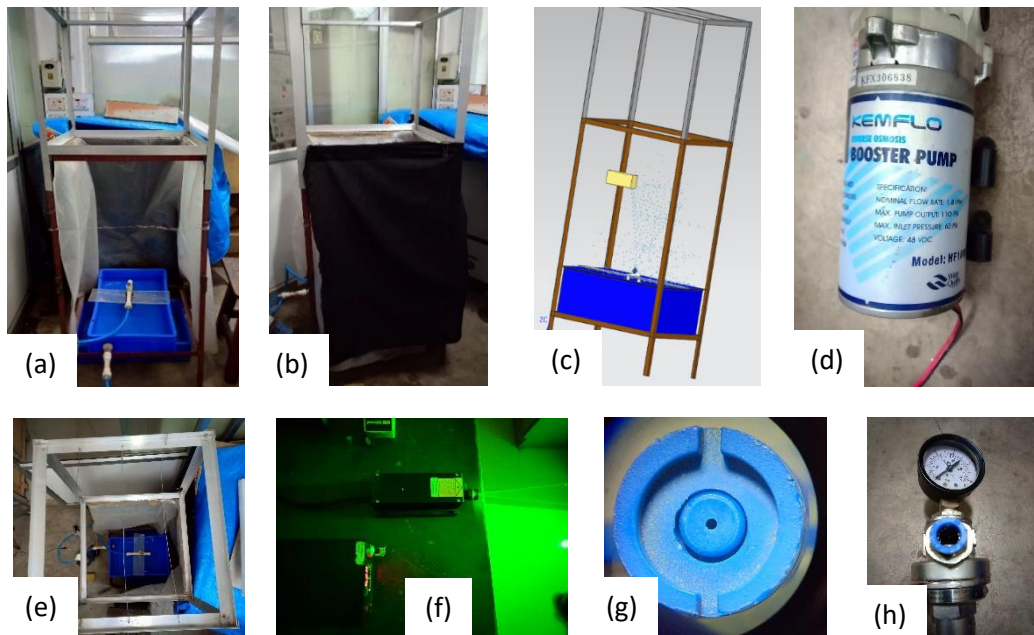


Figure 4 Components in the experimental study of the investigation on spray characteristics in relation to its application to aeroponic agriculture

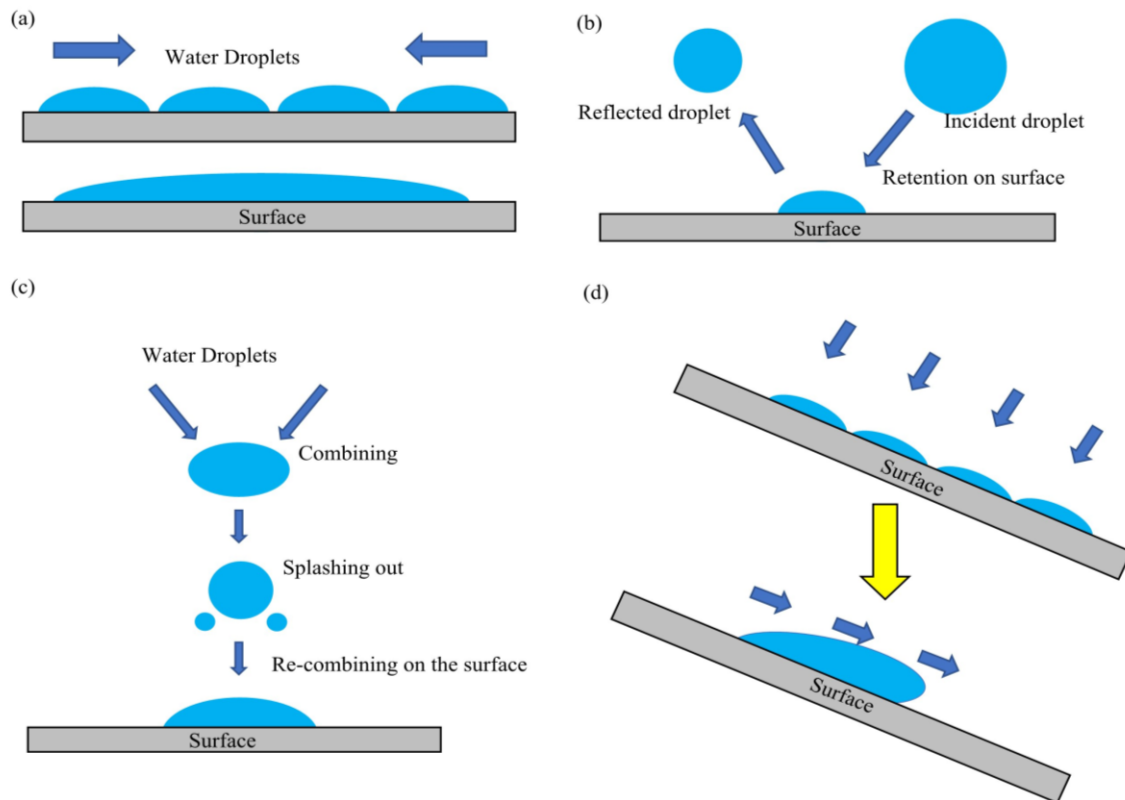


Figure 5 Different types of possible interactions between the droplets and the impacting surface.

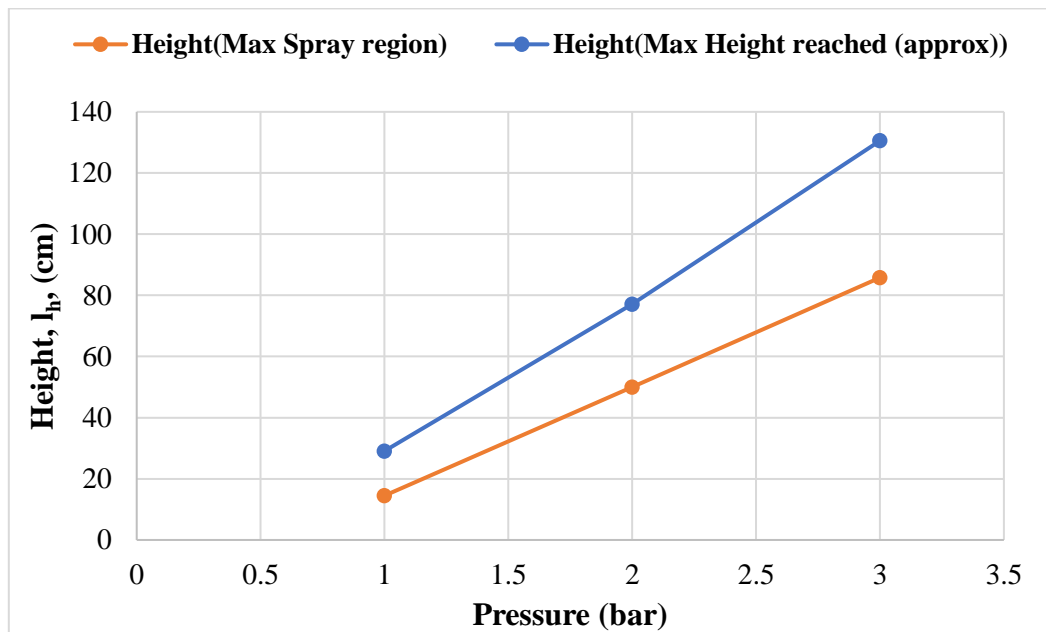


Figure 6 A plot of pressure versus two different heights – spray height and height of maximum spray. Spray height is more at all the pressures. The ratio of the two heights remains nearly the same viz. 0.62.

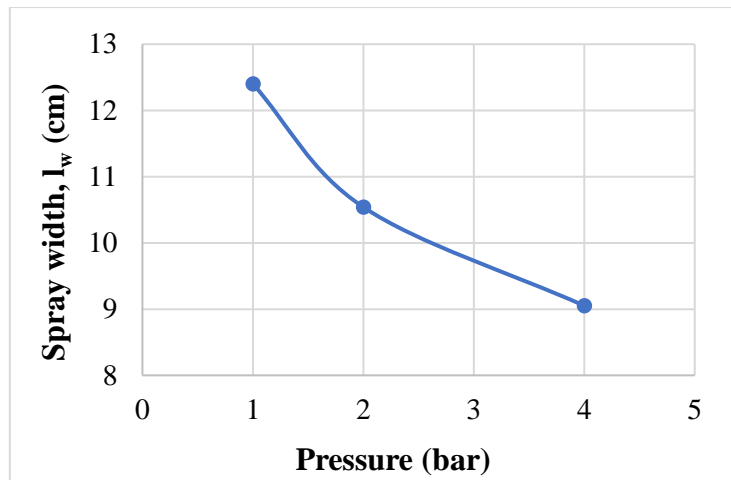


Figure 7 Variation of the calculated spray width with the nozzle inlet pressure. Spray width decreases drastically at higher pressures.

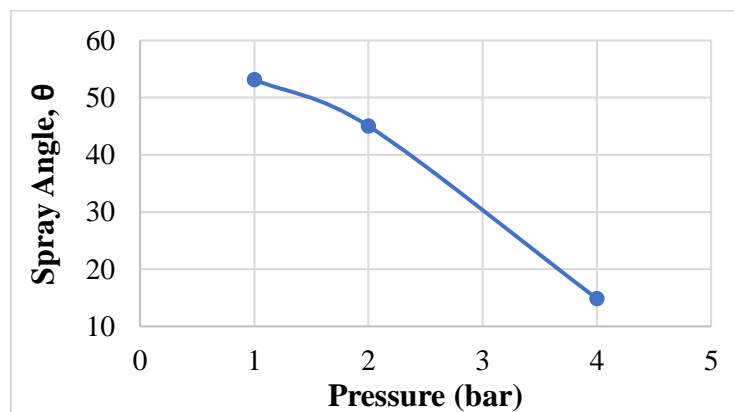


Figure 8 Variation in spray angle at different inlet pressures in the experiments.

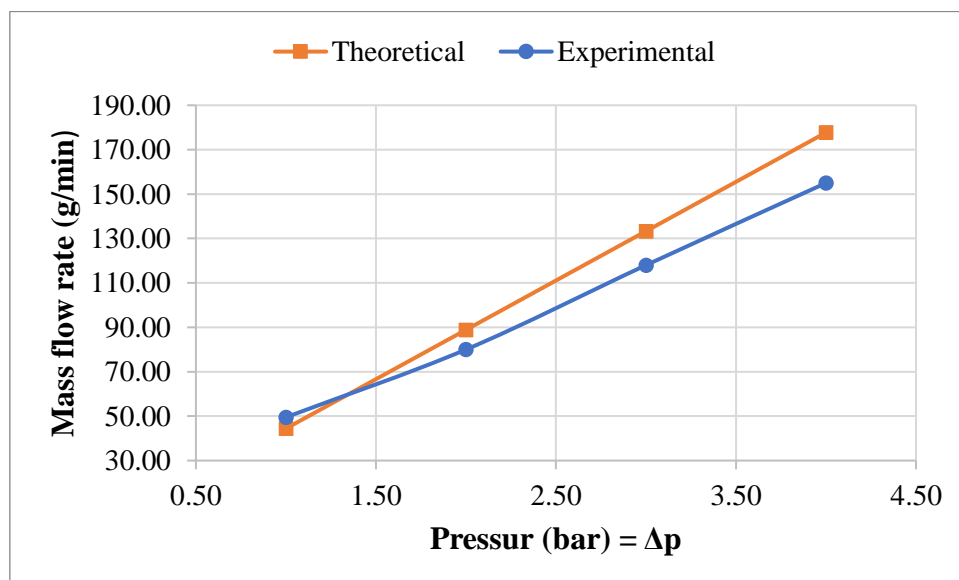


Figure 9 Variation of mass flow rate against nozzle inlet pressure. (Pressure \propto Mass flow rate).

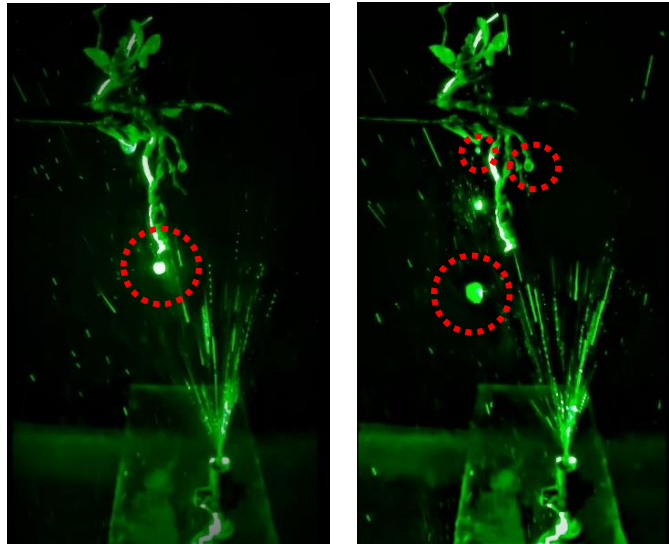


Figure 10 Combination of Droplet-Droplet-Root interaction in spray cone. Accumulation followed by falling-off of a water drop, circled in a dashed red ring, is also shown.

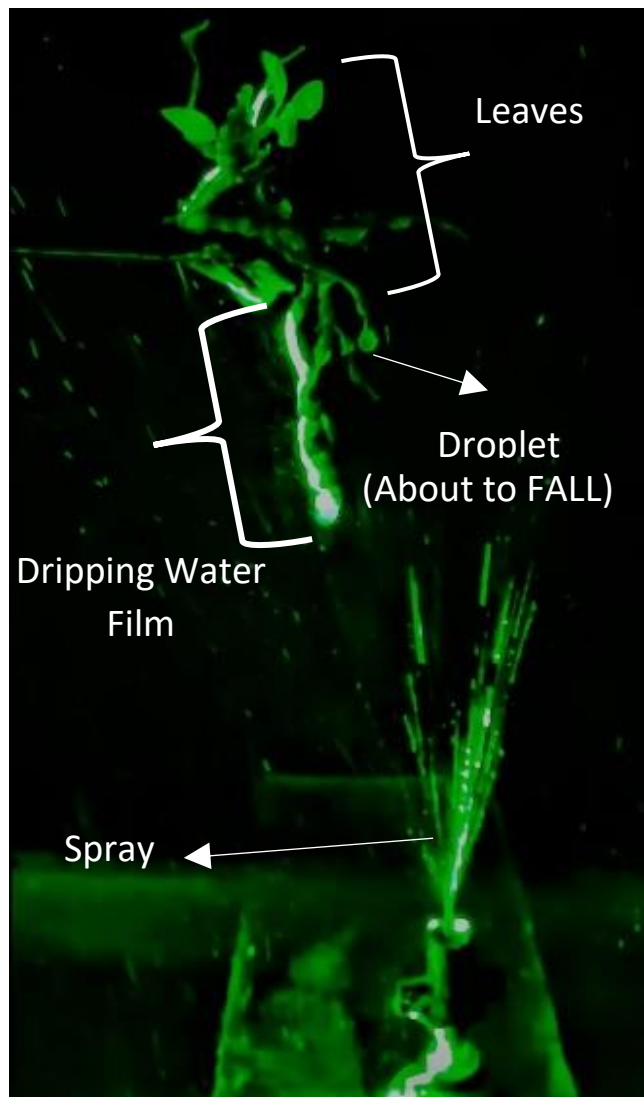


Figure 11 Film formation on a root in the aeroponic system

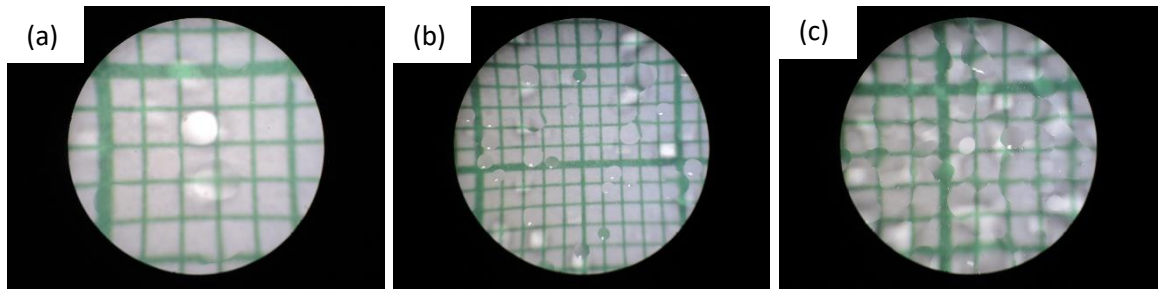


Figure 12 Droplet sizes at different pressures. (a) 2bar (b) 3bar (c) 4 bar.

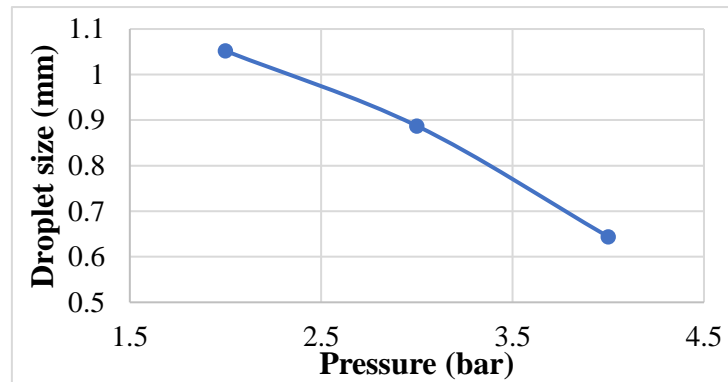


Figure 13 A plot of analysis on droplet size(diameter) over different nozzle inlet pressure.

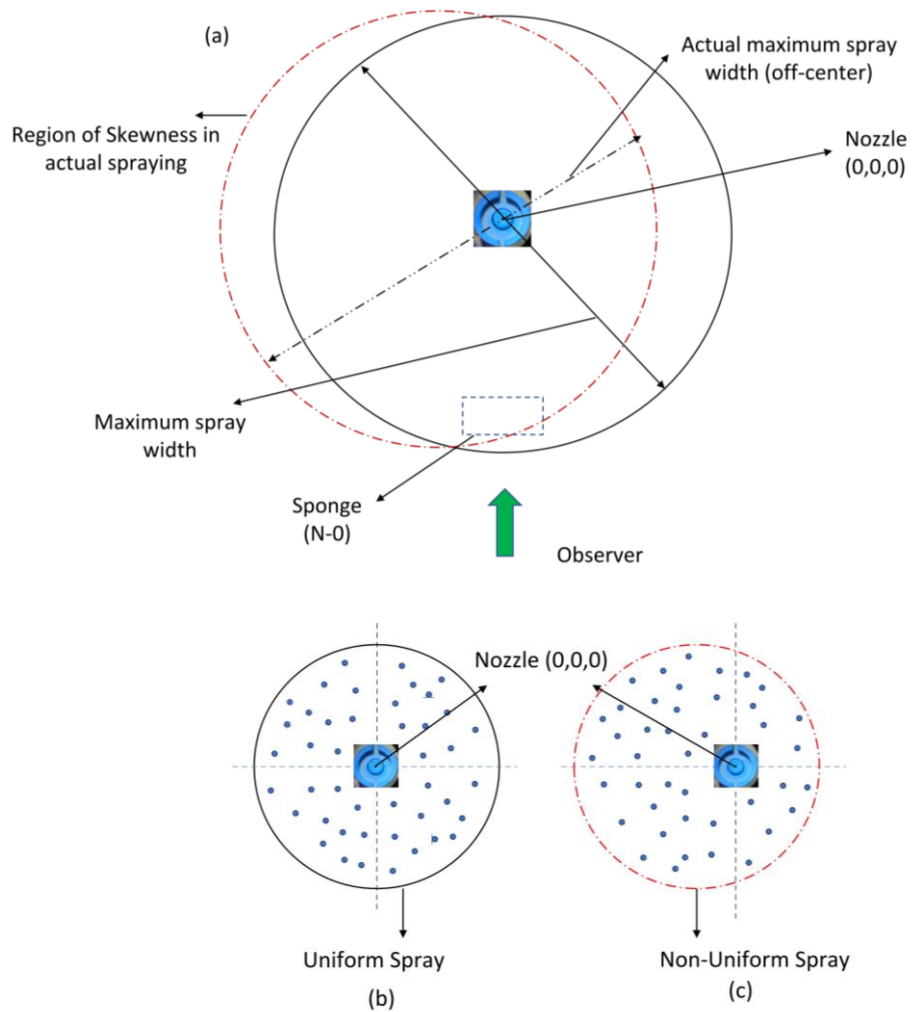


Figure 14 (a) Aerial (top) view of the spray showing both ideal and asymmetric (dotted) cases at the maximum spray width. (b) Ideal droplet distribution and (c) asymmetric droplet distribution showing skewness.

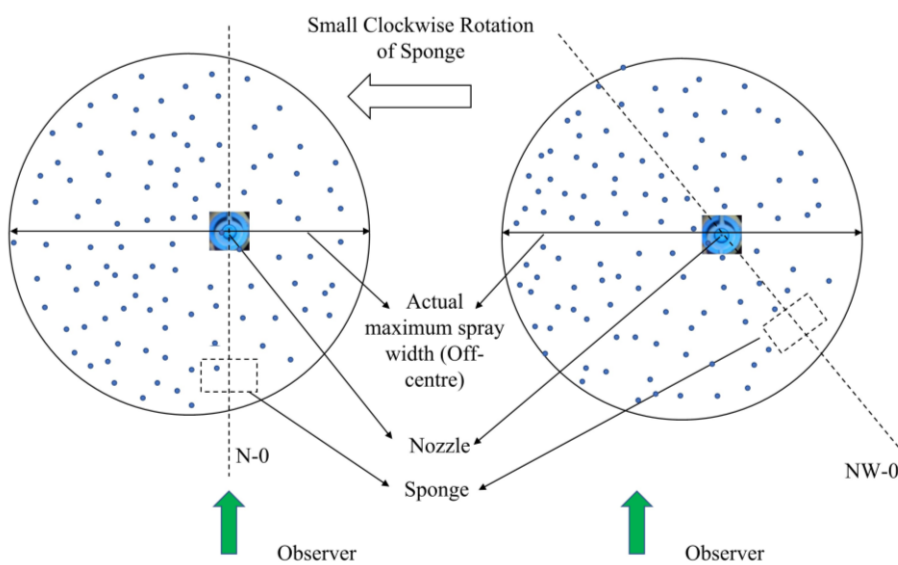


Figure 15 Orientation of the sponge in the spray cone

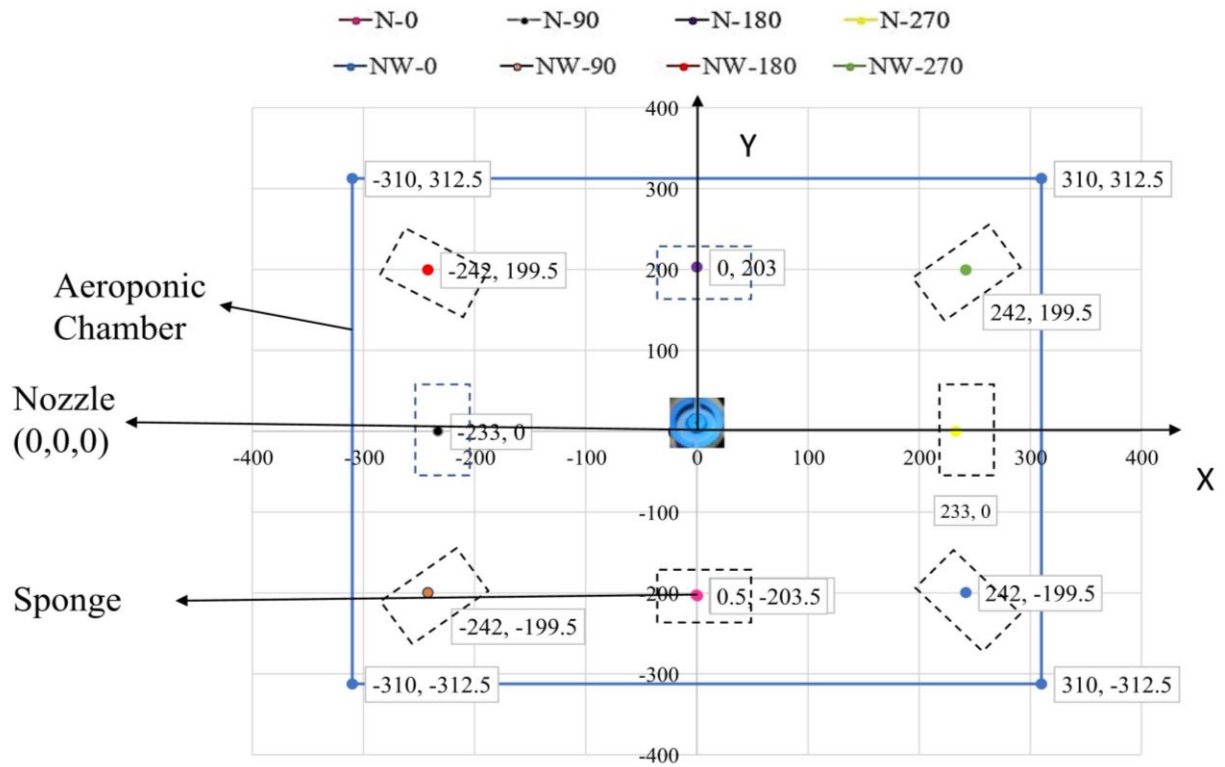


Figure 16 Experimental co-ordinates of the sponge at three different planes.

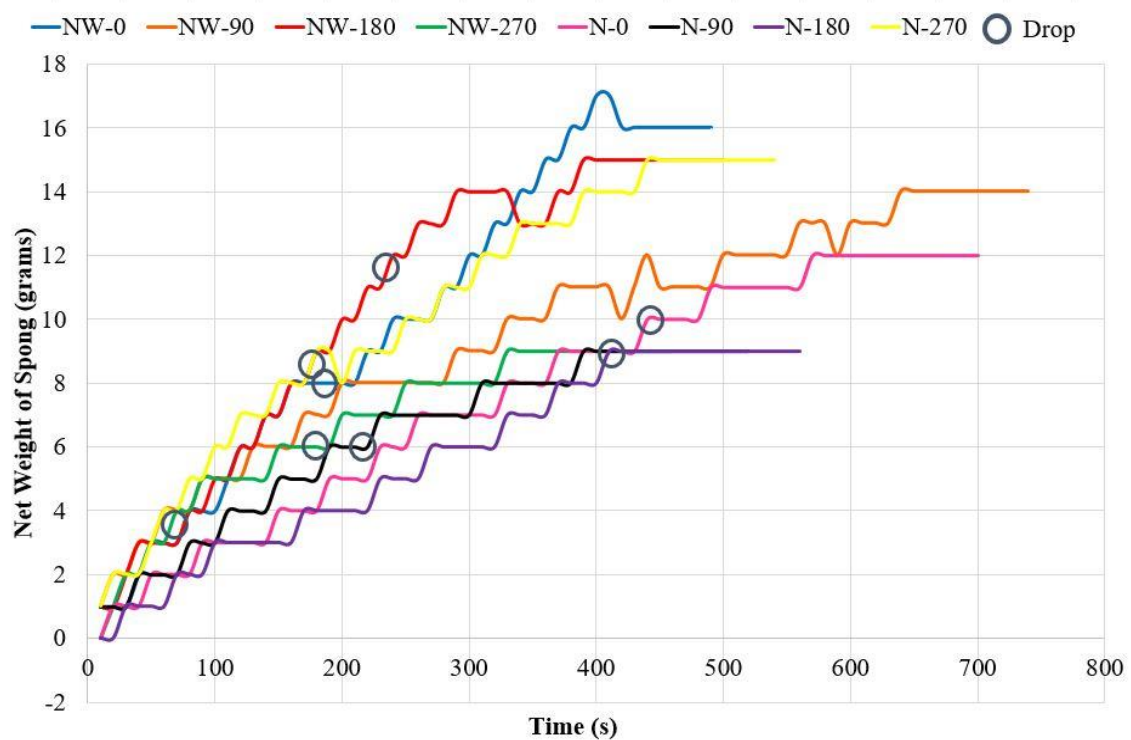


Figure 17 Variation with time of the amount of water retained by the sponge at 8 locations in plane 1 ($z=31.2\text{cm}$). The markers (Circular) indicate water dripping from the sponge.

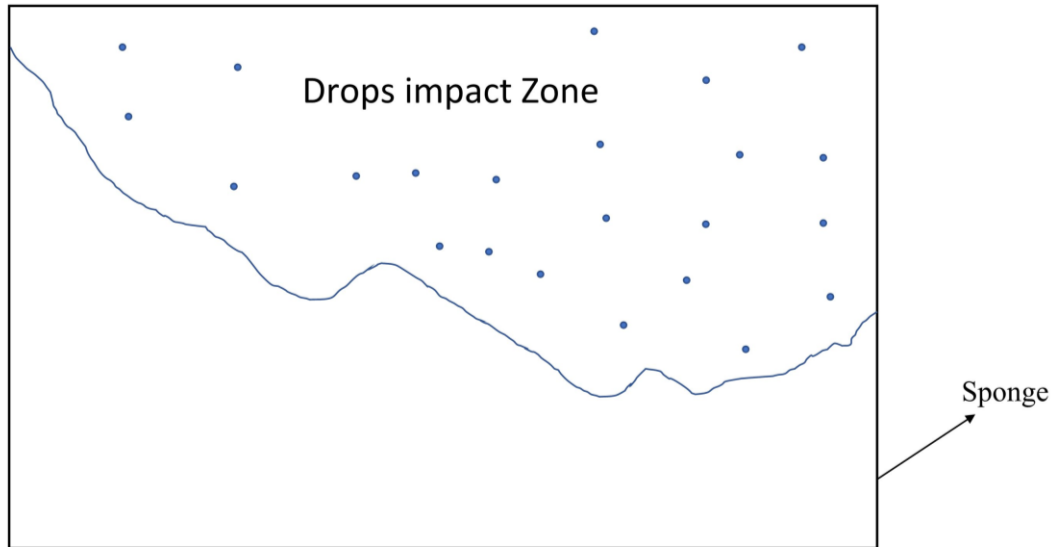


Figure 18 Schematic representation of the droplet impact region on the sponge at a given location.

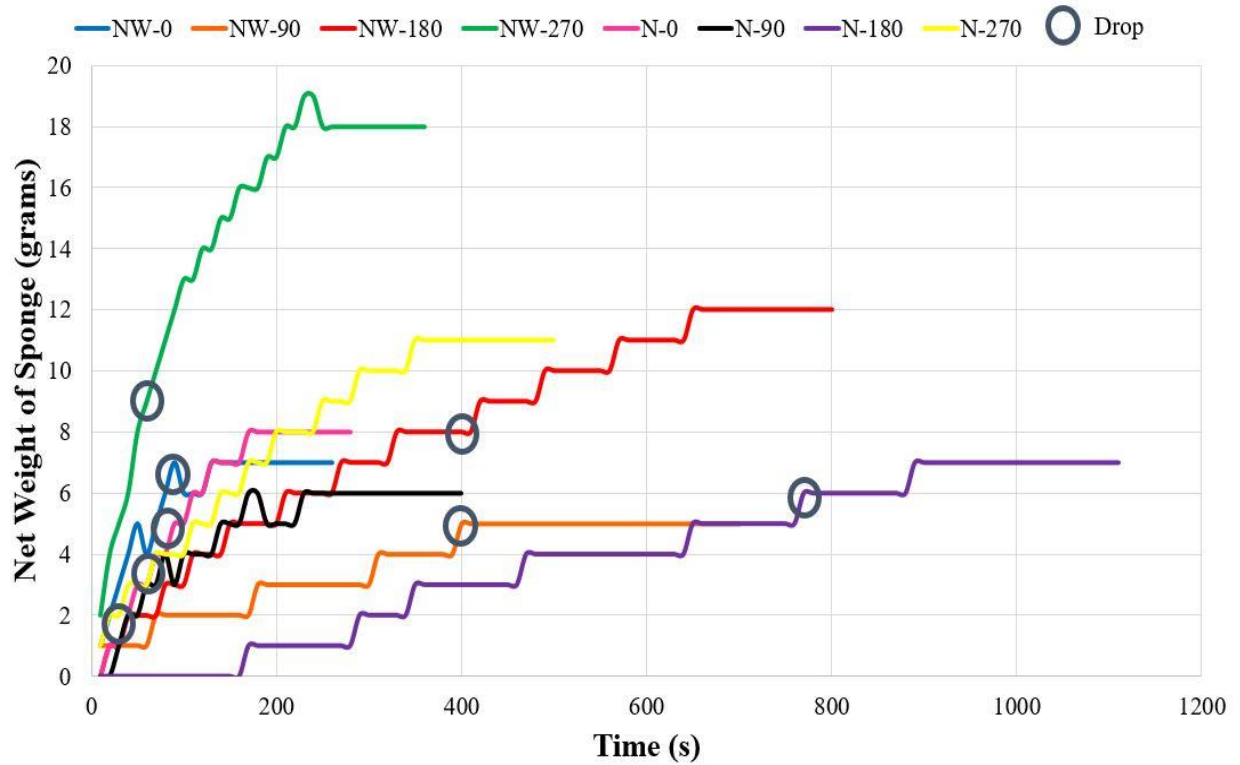
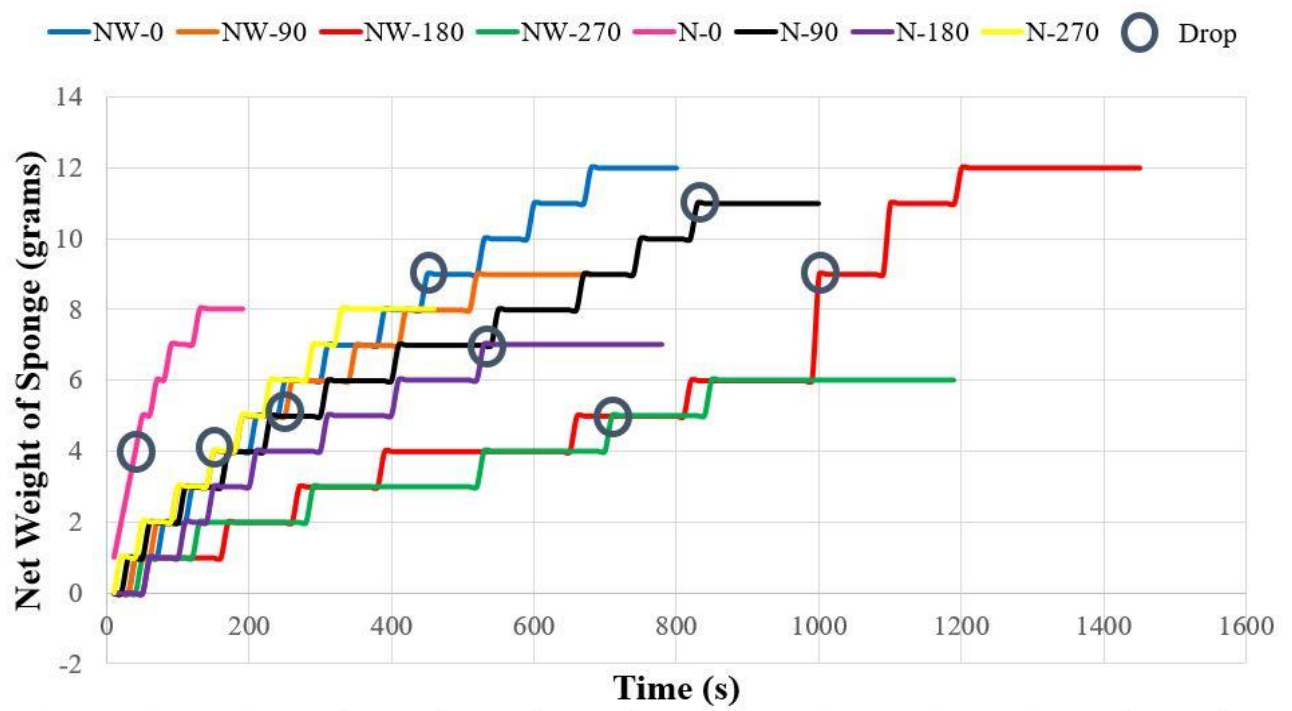


Figure 19 Variation with time of the amount of water retained by the sponge at 8 locations in plane 2 ($z=51.9\text{cm}$). The markers (Circular) indicate water dripping from the sponge.



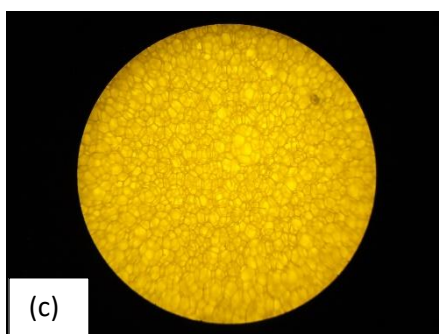
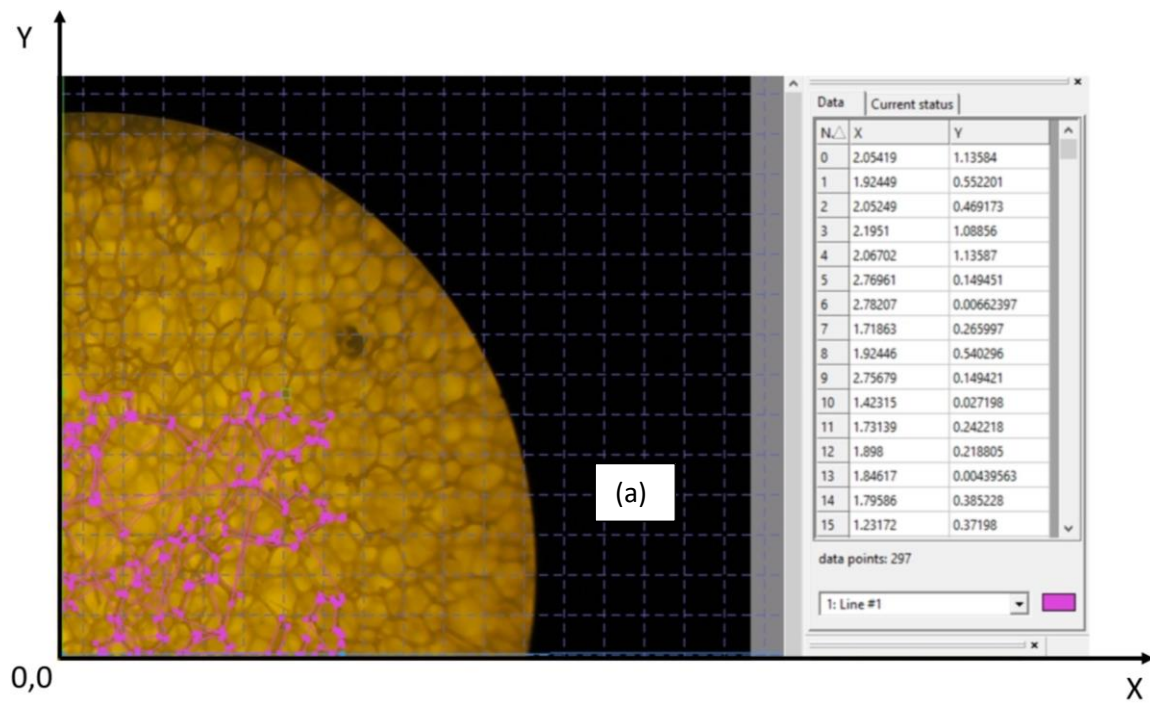


Figure 21 Experimental and Theoretical determination of porosity of sponge.

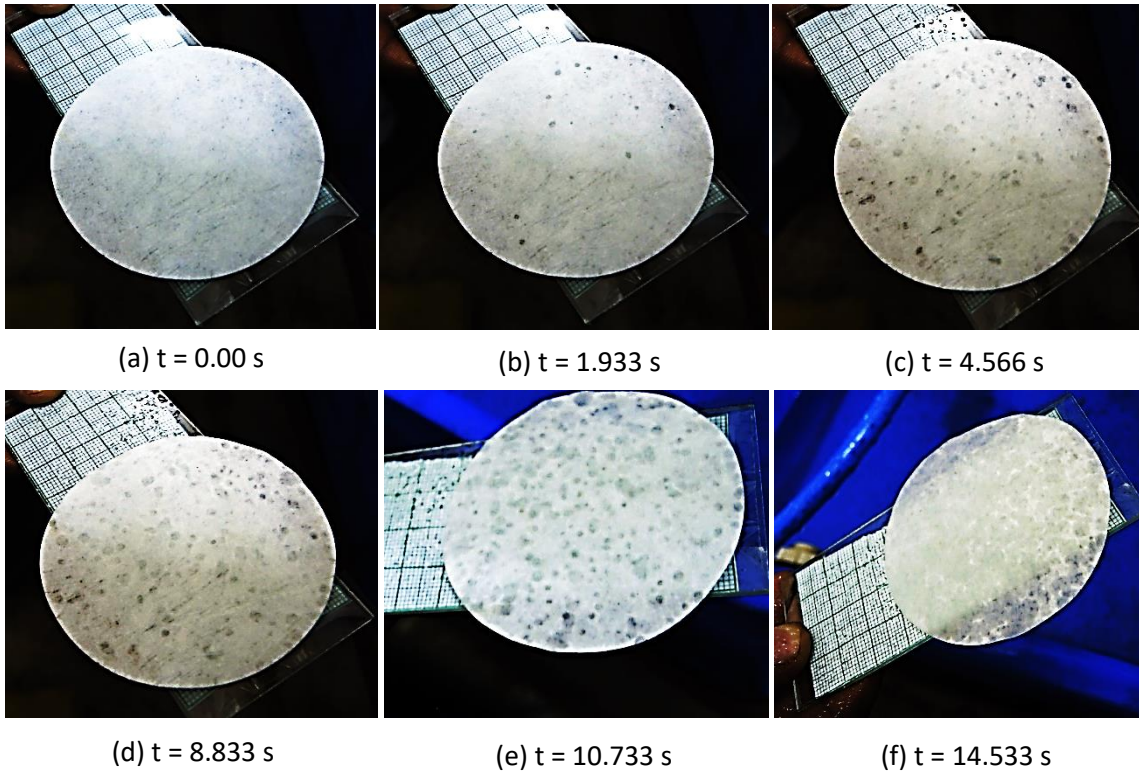


Figure 22 Spray spread distribution at a point is observed on filter paper over time.