

hydrolysis. Amylase breaks down starch into maltose by hydrolysing and breaking the membrane bound disaccharides into monosaccharides. Protease hydrolyses proteins into amino acids where the endopeptidases and exopeptidases break peptide bonds between amino acids which can then be used for the growth and repair of cells and protein synthesis. Lipase hydrolyses lipids into fatty acids and monoglycerides by breaking the ester bonds which can then be used for respiration.

Also water acting as a solvent is very useful as it can rapidly dissolve other substances like gases such as oxygen and carbon dioxide. Also can dissolve wastes such as ammonia (helps with the production of nitrates linked with the production of nucleic acids for organisms) and urea within Osmoregulation. Water can also dissolve ATP and hydrolyse it into ADP and Pi where it can be used for respiration and movement such as muscle contractions.

The final useful trait of water is its cohesive properties which helps with the uptake of water of a plant. The cohesion-tension theory is where water is lost via transpiration, the xylem brings up water and its sticky cohesive properties builds its own body weight and the transpiration pull brings the water up the xylem and the tension is between the cell walls and the water molecule and this helps with photosynthesis where it can increase the growth and distribution of plants.

The transparency of water allows aquatic plants to photosynthesise easily and effectively.

Water is also linked with gaseous exchange systems in many varying ways. However an issue with plants is excessive water loss and this can lead to less photosynthesis so respiration isn't as efficient and can potentially have life threatening effects. However xerophytic plants have many different adaptations which can reduce this water loss such as sunken stomata in pits or grooves and hairy leaves which traps the moist air so it lowers the water potential so less water is lost via transpiration and can completely shut their stomata via guard cells.

Plants aren't the only known organism that is linked with excessive water loss, another is insects but they can completely shut their spiracles and they also have a waxy cuticle layer which acts as a waterproof barrier. This reduced water loss helps with the hydration of the organism and therefore respiration can remain effective so cells aren't destroyed.

Another way in which water is linked with gaseous exchange is through fish and their countercurrent exchange system. This is where fish use their gills which have gill filaments which are highly branched and provide a large surface area to absorb the oxygen from the water. When water flows through the gills the oxygen diffuses quickly into the bloodstream. In the countercurrent exchange system this is where the lamellae opposes the flow of blood in the opposite direction of the water. This process helps maintain a steep concentration gradient which increases the rate of diffusion and the muscular epithelial cells provides a short diffusion distance so it allows more efficient gaseous exchange which helps with many processes within fish such as respiration so this allows movement.

Overall water is essential for living and if water wasn't as helpful and useful as it actually is then life as a whole wouldn't be able to function.