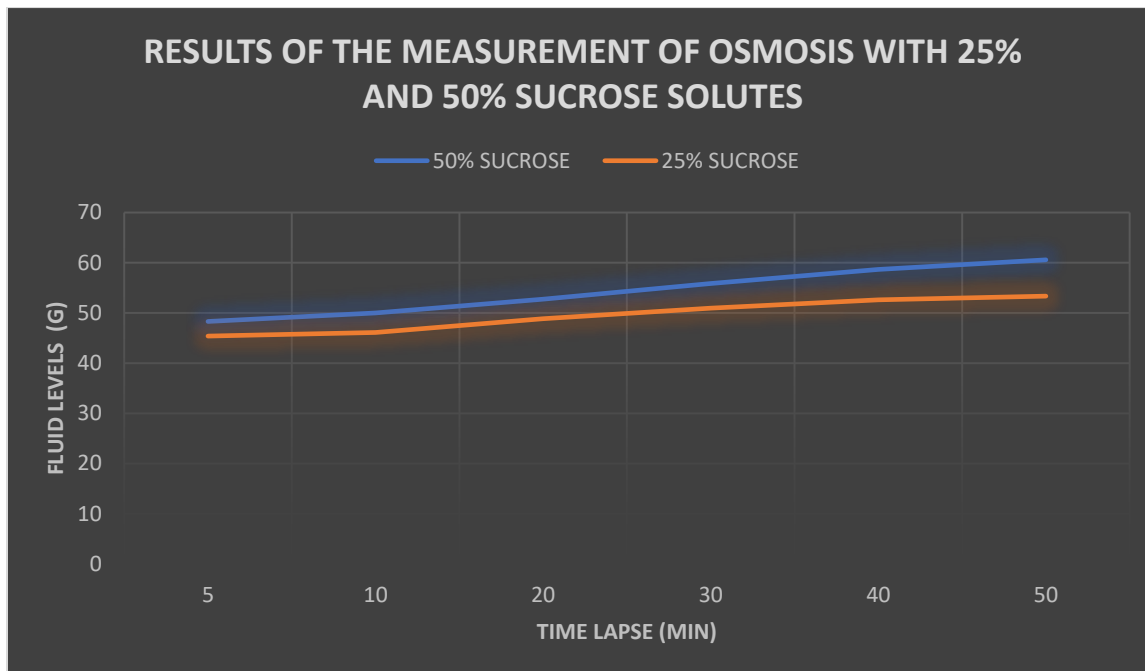


**PURPOSE: 2-F: MEASUREMENT OF OSMOSIS-** THE PURPOSE OF THIS ANALYSIS IS TO CONVEY THE RESULTS OF RATE OF OSMOSIS THROUGH DIFFERENT SYSTEMS AND TO CONFIRM WHICH PROCESS WAS THE FASTEST.

**PROCEDURE:**

1. WE ATTACHED THE DIALYSIS BAGS FILLED AS MUCH AS POSSIBLE WITH SUCROSE SOLUTIONS SECURELY TO THE BOTTOM OF TWO OPEN, THIN GLASS TUBES. ONE BAG WAS FILLED WITH A 25% SUCROSE SOLUTION AND THE OTHER WAS FILLED WITH A 50% SUCROSE SOLUTION. WE MADE SURE THE ENDS OF THE TUBES WERE IMMERSSED IN THE SOLUTIONS.  
\*\*SECURELY SEALING THE DIALYSIS BAGS WILL ENSURE A RELIABLE RESULT. \*\*
2. WE INSERTED BOTH BAGS INTO SEPARATE BEAKERS OF DISTILLED WATER MAKING SURE THE DIALYSIS BAGS WERE FULLY SUBMERSED BUT NOT TOUCHING THE BOTTOM OF THE BEAKERS AND THEN SUSPENDED EACH BY GENTLY APPLYING A RING STAND CLAMP TO THE GLASS TUBES. WE THEN CHECKED FOR ANY SOLUTION LEAKING OUT OF THE BAG.
3. NEXT WE ALLOWED 5 MINUTES FOR THE SYSTEMS TO EQUILIBRATE. THEN WE MARKED THE FLUID LEVELS OF EACH GLASS TUBE WITH A FELT PEN. LASTLY, WE THEN RECORDED THE TIME.
4. FOLLOWING THE THIRD STEP, WE RECORDED THE FLUID LEVEL OF THE GLASS TUBES IN MILLIMETERS EVERY 10 MINUTES FOR 50 MINUTES.
5. IF WE SAW THE FLUID LEVEL RISE TO THE TOP OF THE GLASS TUBE SOONER THAN 50 MINUTES, WE WERE INSTRUCTED TO RECORD THE TIME IT TOOK TO GET THERE, MEASURE THE LENGTH IN MILLIMETERS FROM THE EQUILIBRATION LINE TO THE TOP OF THE GLASS TUBE. WE WERE THEN TO DIVIDE THAT LENGTH BY THE NUMBER OF MINUTES TO GET OUR RATE IN MM/MIN.
6. LASTLY, WE DETERMINED THE RATE OF OSMOSIS FOR EACH SYSTEM. THE SYSTEM THAT HAD THE FASTEST OSMOTIC RATE WAS THE 50% SUCROSE SOLUTION. WE UNDERSTAND THIS TO BE DUE TO HYPOTONIC SOLUTION THAT THE TUBE WAS PLACED IN AND THE HIGHER SURCROSE LEVELS WITHIN THE TUBE CAUSING AN INCREASED LEVEL OF OSMOSIS.

**RESULTS: THERE WERE 2 TUBES THAT CONTAINED SUCROSE SOLUTION. 1<sup>ST</sup>- 25% SUCROSE (INITIAL FLUID WEIGHT- 42.80G) AND THE 2<sup>ND</sup> CONTAINED 50% SUCROSE (INITIAL FLUID WEIGHT- 44.93G). THERE WAS A CONSISTENT LEVEL OF OSMOSIS TAKING PLACE WITH EACH TUBE EVERY 10 MINUTE INCREMENT THROUGHOUT DURING THE TIME FRAME OF THE ANALYSIS.**



**DISCUSSION:**

THIS WAS AN EASIER SET UP. ONCE THE TUBES WERE IN PLACE. THE LEVEL OF OSMOSIS WAS GRADUAL BUT CONSISTENT. WITHIN THE 50% SUCROSE SOLUTION THERE WAS AN INCREASED LEVEL OF OSMOSIS VS THE 25% SUCROSE SOLUTION. THIS WAS DUE TO THE HYPOTONIC CONDITION OF WHERE THE TUBE WAS PLACED. THIS MAKES THE TUBE INCREASE IN SIZE AS WATER MOVES OUT OF THE BEAKER AND INTO THE TUBE OF SUCROSE SOLUTION. I DID

NOTE THAT THE WATER WILL MOVE QUICKER IN A HIGHER SUCROSE TUBE AS SHOWN IN THE CHART ABOVE.

THERE DOESN'T SEEM TO BE ANY ERRORS, BUT I CAN ONLY FACTOR IN TEMPERATURE FOR THE GRADUAL INCREASE VS A RAPID INCREASE.

**CONCLUSION:**

THE PURPOSE OF THIS EXPERIMENT WAS TO CONVEY THE RESULTS OF THE MEASUREMENT OF OSMOSIS. THE MAJOR FINDINGS INCLUDED THE FOLLOWING:

- OSMOSIS- DOES NOT REQUIRE ANY TYPE OF ATP ENERGY- SIMPLY PLACING A LOW OR HIGH SOLUTE CONCENTRATION WITHIN A SEMIPERMIABLE TUBE WILL ALLOW FOR OSMOSIS TO OCCUR WHEN PLACED IN A HYPOTONIC SOLUTION.
- A HIGHER SUCROSE SOLUTION CAUSES FOR IN INCREASED LEVEL OF OSMOSIS
- TEMPERATURE WILL PLAY A FACTOR IN OSMOSIS WITH A HIGH AND LOW SOLUTE CONCENTRATION.
- ALL STEPS AND MEASUREMENTS ARE CRITICAL TO AN ACCURATE RESULT.