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*The Effect of Chlorophyll on Stressed Biological Membranes*

Research indicates potential health benefits of chlorophyll in repairing tissues and healing wounds. The researcher investigated chlorophyll's ability to prevent tissue damage in Beta Vulgaris (beetroot) when placed in ethyl, methyl, and isopropyl alcohols, hypothesizing liquid chlorophyll will reduce membrane disruption. Alcohol concentrations placed in micro wells were 0%, 10%, 20%, 30%, and 40%. Sixty beet pieces were cut to 0.5 cm cubes. Thirty pieces were injected with 1 mL liquid chlorophyll, ten for each alcohol, two for each concentration, as the experimental groups. The control set of thirty pieces were not injected. Pieces were placed in the alcohols and after ten minutes, the beets were removed. Solution absorbancies were calculated with a spectrometer. Control groups demonstrated increased absorbancies as alcohol percentages increased, indicating increased membrane disruption. Ethyl ranged from a minimum absorbance of 0.1908 to a maximum of 0.7303, which is a difference of 0.5395. Isopropyl's difference was 1.0012 and methanol's was 0.8879. In contrast, the beets injected with chlorophyll indicated less increases when extreme minimum and maximum data points were omitted. Ethanol's difference was 0.514, and methanol's difference was 0.6905, both slightly below the control. Isopropyl was at 1.1978, slightly above the control. Observing the chlorophyll groups with the unaided eye, 6 of the 10 ethanol solutions, 3/10 of the isopropyl, and 4/10 of the methanol solutions appeared to have red pigment which had been released from the beet. Supporting the hypothesis, liquid chlorophyll did indicate potential ability to reduce Beta Vulgaris membrane disruption caused by alcohols.