

The Effect of SLS on Melanoma Cells with and without The Presence of Vitamin C

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This study aimed to know the effect of Sodium lauryl Sulphate (SLS) on Melanoma cells with and without the presence of vitamin C. SLS is a synthetic organic compound with the formula of $\text{NaC}_{12}\text{H}_{25}\text{SO}_4$, which is used in many detergents, cleaning, pharmaceutical, and food products. SLS has the ability to solubilize the lipid bilayer and denature the proteins that are founded in the membrane. Therefore, it acts as a protease enzyme as well as a lipid emulsifier. Many studies were made regarding the direct effect of vitamin C on different kinds of cancer cells, including Melanoma cells. Vitamin C ability to kill cancer cells without any noticeable toxicity or pathological changes in many organs was proved, so that's why it was used in our experiment to help SLS in the reduction of Melanoma cells to the maximum point. Lipids contribute in tumour development and progression, and they have a potential role in facilitating the spread of cancerous cells to secondary sites. The study methodology included three phases. First, the solubility of different concentrations of SLS and vitamin C in the cell media was tested to decide the best concentration that should be added to the melanoma cells. The best concentration was 5% which was made by adding 0.53g of SLS to 10 cm³ of cell medium with the same volume and concentration of vitamin C. Second, the media of the control, SLS, vitamin C and SLS with vitamin C were filtered and added to the melanoma cells separately.

After three days, the cells were examined under the microscope. The results showed that SLS has completely destructed the cells so that no remains were found, while vitamin C has only killed the cells without disintegrating them. However, SLS together with vitamin C have disintegrated the cells which means that SLS is the cause of the destruction of melanoma cells. The best explanation for this is that SLS destroys the cells by breaking down the membrane of the cell and its organelles.