



SeaCell 消除自由基實驗

The Experiment of Seacell eliminating free radicals

DPPH (DPPH – 2,2 DIPHENYL-1-PICRYLHYDRAZYL) 是一種穩定的自由基，溶於乙醇中會呈現紫色，加入可抗自由基樣品可以捕捉自由基，自由基消失時，顏色轉為黃色。

DPPH (DPPH – 2,2 DIPHENYL-1-PICRYLHYDRAZYL) is a kind of stable free radicals, appears purple when dissolve in ethanol, it can be captured by adding anti-free radicals, its color turns to yellow when free radicals disappear.

實驗一：比較不同材質消除自由基之能力

Experiment 1: Compare the ability of different materials to eliminate free radicals

1. 以乙醇調配自由基 DPPH 0.1 mM (莫耳濃度)。
1. Blend ethanol with free radicals DPPH 0.1 mM (molarity)
2. 條件：試劑 50 ml，試樣：2 g，時間：120 mins
2. Experimental conditions: Reagents 50 ml. Sample: 2 g. Time: 120 mins.
 - a. 原試劑 (Original Free Radical) DPPH 0.1 mM 莫耳濃度 (由左至右)
a. Original Free Radical DPPH 0.1 mM molarity (From left to right)
 - b. 聚酯纖維布 100% Polyester Fabric
b. Polyester Fabric 100%
 - c. 純棉纖維布 100% Cotton Fabric
c. Cotton Fabric 100%
 - d. 海藻纖維布(SeaCell)：54% Cotton / 23% Tencel / 23% SeaCell
d. SeaCell Fabric: 54% Cotton / 23% Tencel / 23% SeaCell
3. 實驗結果：聚酯化學纖維完全無效，100% Cotton 自由基顏色有變淺，SeaCell 海藻纖維能完全捕捉自由基。



3. Experimental results: Polyester Fabric is completely ineffective; With 100% Cotton Fabric, free radicals' color are lighter; SeaCell Fabric can completely capture free radicals.



實驗二：比較不同纖維素纖維消除自由基之能力。

Experiment 2: Compare the ability of different cellulose fibers to eliminate free radicals.

1. 以乙醇調配自由基 DPPH 0.2. mM (莫耳濃度)。

1. Blend ethanol with free radicals' DPPH 0.2 mM (molarity)

2. 條件：試劑：50 ml，試樣：2 g，時間：120 mins

2. Experimental conditions: Reagents 50 ml. Sample: 2 g. Time: 120 mins.

a. 原試劑 (Original Free Radical) DPPH 0.2 mM 莫耳濃度 (由左至右)

a. Original Free Radical DPPH 0.2 mM molarity (From left to right)

b. 天絲纖維布 100% Tencel Fabric

b. Tencel Fabric 100%

c. 純棉纖維布 100% Cotton Fabric

c. Cotton Fabric 100%

d. 海藻纖維布(SeaCell)：54% Cotton / 23% Tencel / 23% SeaCell

d. SeaCell Fabric: 54% Cotton / 23% Tencel / 23% SeaCell

3. 實驗結果：將自由基濃度增加一倍，SeaCell 海藻纖維相對於其他纖維素纖維，100% Cotton 無法消除自由基，100% Tencel 也無法消除自由基，SeaCell 仍然能完全捕捉自由基。



3. Experimental results: When the free radical concentration is doubled, comparing SeaCell Fabric with other fabrics, 100% Cotton Fabric can't eliminate free radicals; 100% Tencel Fabric can't eliminate free radicals; SeaCell Fabric can completely capture free radicals.

實驗三：試驗製作 SeaCell 海藻纖維的粉末是否也有消除自由基的能力 Experiment 3: Test if SeaCell Fabric powder also has the ability to eliminate free radicals

1. 以乙醇調配自由基 DPPH 0.2. mM (莫耳濃度)。
1. Blend ethanol with free radicals' DPPH 0.2 mM (molarity)
2. 條件：試劑：50 ml，試樣：0.05 g，時間：60 mins
2. Experimental conditions: Reagents 50 ml. Sample: 0.05 g. Time: 60 mins.
 - a. 原海藻粉末。(由左至右)
a. Ground seaweed. (from left to right)
 - b. 海藻粉末置於試劑中。
b. Put the ground seaweed into reagent.
 - c. 原試劑 (Original Free Radical) DPPH 0.2 mM 莫耳濃度。



c. Original Free Radical DPPH 0.2 mM molarity.



3. 實驗結果：粉末試樣重量基準為 2 公克樣布中含量 25%纖維時，含有海藻粉之重量。實驗結果消除自由基速度非常快，60 分鐘就有明顯變化，120 分鐘已經將自由基完全消除。

3. Experimental result: the 2 g sample powder with 25% fabrics per weight eliminates free radicals fast. The experimental results show that the free radicals are changed significantly within 60 mins, and eliminated completely within 120 mins.

結論：自由基為人體新陳代謝下，所產生的不對稱電子，會去搶奪正常細胞的電子來平衡，人體有太多自由基會對人體有不良的影響，以上試驗可證明，SeaCell 海藻纖維的確有消除自由基的功效，基於所有測試單位並無法做此測試，所以我們研究出以測試化妝品的方式來測試，以上實驗，證明 SeaCell 是可以消除自由基。

Conclusion: Free radicals are asymmetric electrons, which are produced in the body metabolic processes, and grab the normal cells of electronic to balance. Excessive free radicals will damage the body. The test proves that SeaCell Fabric can eliminate free radicals. Since all test organizations can't do this test, we develop the tests in the way we test cosmetics. Based on the experiments, SeaCell Fabric can eliminate free radicals.