

AMITY EDUCATIONAL RESOURCE CENTRE

**YRoNS 2019,
Amsterdam, Netherland**

PROJECT DETAILS FORM

School Name: József Eötvös Secondary School, Hungary

S.No	Team Members	Team Leader	Project Title	Abstract (Max 200 words)	Teacher Advisor
1	Dalma Tóth		Roses	<p>The purpose of my research was to produce perfume from flower petals using two different methods: the first is called enfleurage based on a French method and the second is called distillation.</p> <p>Enfleurage is a 500 years old method, where petals are soaked in vegetable oil and changed every second day. In my experiment, I used rose petals and coconut oil. The process is 90 days long, after which the oil is full of essences. Then I throw out the flowers and mix the oil with ethanol, which results in the mixture dividing into two phases because of their different polarity. After cooling, the ethanol takes up the scent of the oil and that is the final product called eau de Parfume.</p> <p>Distillation is a substantially shorter method: the petals are put into a vessel</p>	Istvan Sandor

				<p>filled with water, with a small bowl in the pot, placing the lid on. When I boil the mixture, the vapour drops into the bowl inside. This essence is a substrate of another perfume called eau de toilette. A quality analysis was conducted on the subtracted essences, after which I compared them to each other based on their scent. A blind test confirmed the expected result: the essence made with enfleurage has a stronger scent.</p> <p>The second part of my research aimed to understand the relationship between the scent and the colour of the roses: I was interested in whether flowers with different colours have different scents. The blind test showed a negative result, which was expected based on the theoretical background research: there is no relationship between scent and colour of flowers, because the molecules are different and have no conformable parts.</p>	
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1	Boglárka Öcsi		Visualization and Morphological Analysis of the Cerebral Vasculature in a Mouse Model of Vitamin D Deficiency Using an Improved Vessel Staining Technique	<u>BACKGROUND:</u> Cerebrovascular stroke is the sudden reduction of blood flow to a part of the brain which may cause cell death in the nervous tissue. Its dramatic consequences may be attenuated by blood perfusion from surrounding brain areas via vessels called anastomoses. The success of this rescue may depend on the number, size and functional properties of the anastomoses. Vitamin D is an important regulator of vascular physiology, therefore we hypothesised that	Dr. Zsuzsanna Miklós

				<p>it influences the development of cerebral anastomoses.</p> <p><u>AIMS:</u> Our primary aim was to investigate the effect of vitamin D deficiency on the number, diameter and tortuosity of cerebrovascular anastomoses in an experimental mouse model. To achieve this goal, we developed an improved vessel staining protocol which allowed reproducible morphological analysis of brain vessels.</p> <p><u>RESULTS:</u> We found a decreased number of anastomoses in the brain of vitamin D deficient mice which were characterized by smaller diameters and higher tortuosity.</p> <p><u>CONCLUSION:</u> Vitamin D deficiency has unfavourable effects on the development brain vascular anastomoses, therefore proper vitamin D supplementation may improve the prognosis of cerebrovascular stroke events.</p>	
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1	Boldizsar Nemedi		Comparative examination of different fruits' colour	Major aim of my study was to conduct comparative examinations on the antioxidant capacity of diverse fruit extracts of definite colour. The evaluation of the results may lead to draw conclusions regarding the connection between the intensity of the fruits' colour and their antioxidant feature. It would be logic to assume that the more intense	Istvan Sandor
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3					

4				<p>the colour, the more “healthy” the fruit (foodsuff) is, thanks to its high antioxidant capacity. Is this assumption true?</p> <p>I tried to find answer to this question by performing 4 different kinds of measurements. I applied simple spectrophotometric measurements to establish the intensity of the colour of the studied fruits. As the antioxidant feature of a fruit (food) is caused by several distinctive compounds, one antioxidant measuring method is not enough to obtain realistic picture. Thus I used three different techniques, and determined the total poliphenolic content (TPC), the radical scavenging capacity (DPPH) and the reducing ability (FRAP) of 9 different fruit extracts. Cranberry, blackberry, sour-cherry, lime, pineapple, blackcurrant, white and blue grapes were involved in the studies. Great variability and in many cases correlations have been revealed between the colour intensity and the antioxidant activity.</p>	
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1	Krisztina Balázs,		Colour-Changing Anthocyanin	<p>The aim of our research was to observe the colour of anthocyanin in different environmental conditions such as acid or alkaline medium or being left on the open air. The inspiration behind our project was an article, which said that if we cut up an orange and let it stand on the open air, the colour of the orange will turn purple. We started wondering whether this is possible or not and if it is, then what causes the fruit to change its colour.</p> <p>We found out from our experiment, that the change of the orange's colour is a real phenomenon and a molecule, called anthocyanin is responsible for it. We came to the realization, that a lot of fruit and vegetable contains anthocyanin and it led to another question: can we use them as indicators? We already knew that anthocyanin can change its colour, but we didn't know how will it react if we add acid or base to it. We planned an experiment, where we added sodium-hydroxide and hydrochloric acid to the brew of different fruit's and vegetables'. Most of the brews showed a change of colour, when acid or base was added to them and reason behind it was the presence of anthocyanin.</p>	Ms. Márta Ferenczy, Mr. Istvan Sandor
2	Kinga Drótos,				
3	Júlia Novák				
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				<p>As a conclusion we would say that fruit and vegetables which contain anthocyanin can be used as natural indicators, but they might not be as reliable as artificial indicators. We also aim to compare the two different reactions which occurred during the two experiments, since the orange's colour change is due to a redox reaction, but the second experiment is due to an acid-base reaction.</p>	
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