

Obesity prevention effects of plant varieties through nutrition mediated brown adipose tissue activation

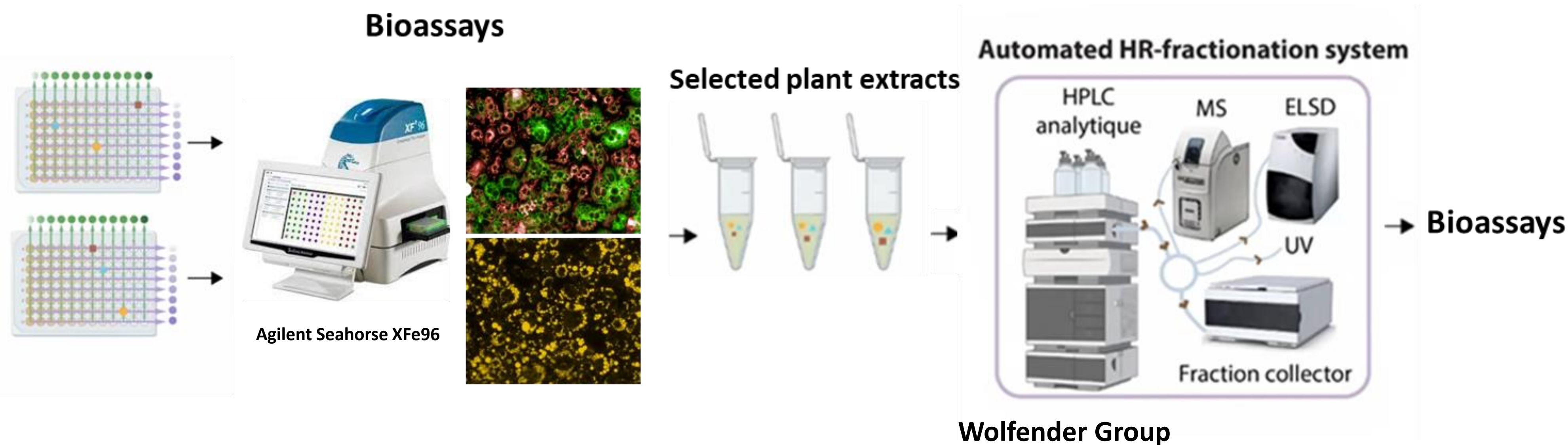
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Background

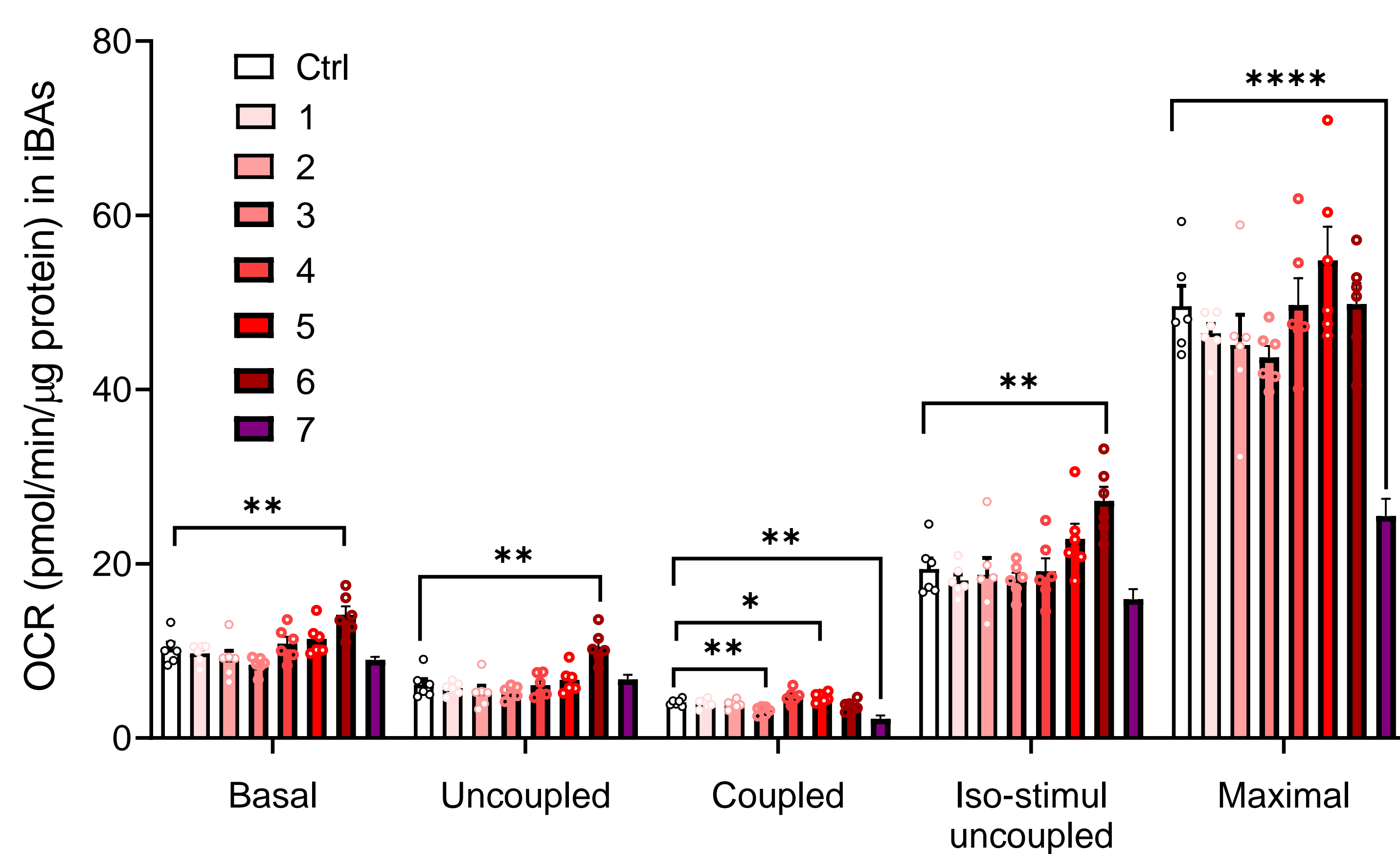
Obesity is a major health problem, which affects millions of people all over the world. Brown adipose tissue has various desirable functions which are beneficial to mitigate symptoms and progression of obesity. While plant extracts containing multiple natural constituents are known to have ameliorating effects on obesity, the exact bioactive compounds responsible for its effect in relation with brown adipose tissue activity has yet to be identified or extracted.



Experimental design

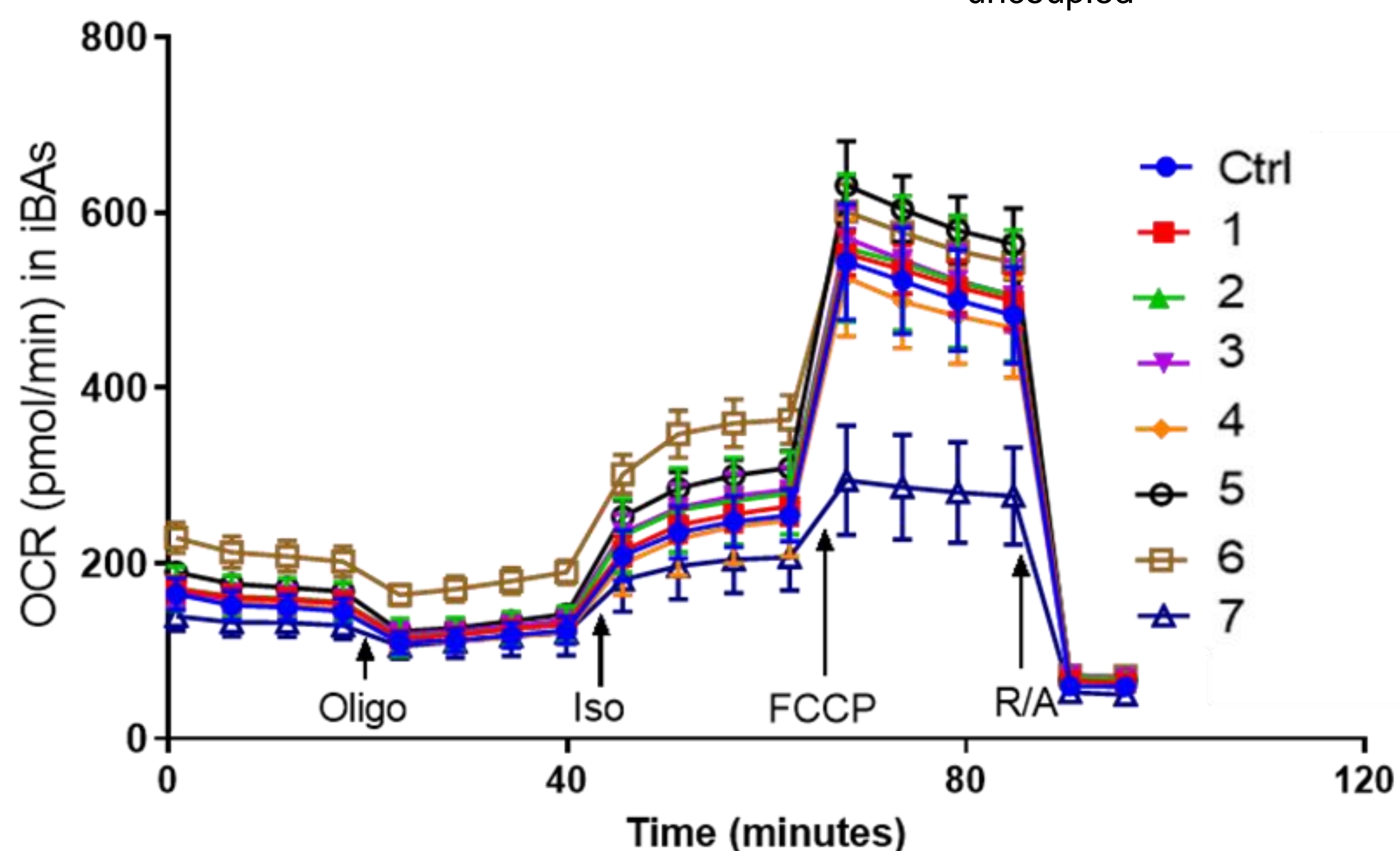
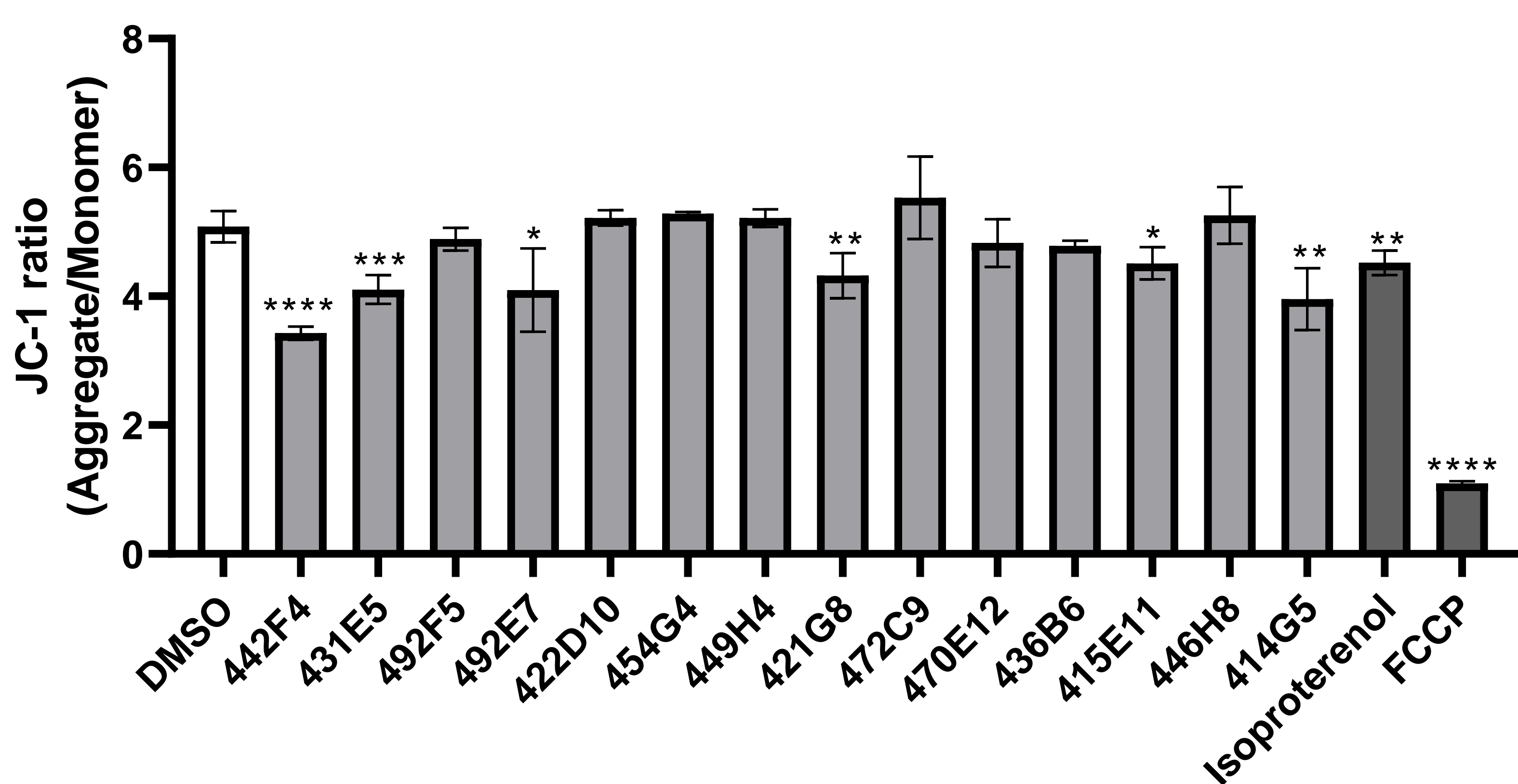
1. We initially screened for plant extracts from various species and genera that shows regulation on brown adipose tissue formation/function: mitochondrial membrane potential, cellular respiration, brown adipocytes differentiation.
2. The metabolite profiles and the biological effects of these potential candidates will be investigated.
3. The effects of potential natural plant extracts and plant-derived compounds on energy expenditure and obesity prevention in high fat diet-fed mice will also be studied.

2. Effects of natural plant extracts on cellular respiration in iBAs



Results

1. Effects of natural plant extracts on mitochondrial membrane potential in iBAs



3. Effects of natural plant extracts on differentiation in iBAs



Conclusions

We expect to identify several plant varieties that can strongly activate the brown adipose tissue and ameliorate disease progression. Consumption of potential natural plant extracts/compounds enriched food products might provide a safe and natural method of preventive nutrition against obesity.