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Title: Electrochemical oxidation mechanism of flavonoid compounds

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SUMMARY

The oxidation of rhamnazin (3,5-dihydroxy-2-(4-hydroxy-3-methoxyphenyl)-7-methoxychromen-4-one), fisetin (2-(3,4-dihydroxyphenyl)-3,7-dihydroxychromen-4-one) and rhamnetin (2-(3,4-dihydroxyphenyl)-3,5-dihydroxy-7-methoxychromen-4-one) has been studied. These intensively coloured flavonoid compounds belong to group of natural occurring compounds. Rhamnazin, fisetin and rhamnetin are important bioactive compounds with antioxidative, anti-carcinogenic, antiviral, anti-allergic and anti-inflammatory properties. Flavonoids have been studied using electrochemical methods and UV/Vis spectroscopy in aqueous, buffered or unbuffered solution. This thesis is focused on the determination of oxidation mechanism of the flavonol structure. The oxidation mechanism involves electron transfer coupled with chemical reaction. Stability of these compounds significantly depends on the presence of the oxygen. The distribution of oxidation products of these compounds was monitored by HPLC-MS/MS and HPLC-DAD.