A.P. Nelyubin Institute of Pharmacy
Department of chemistry

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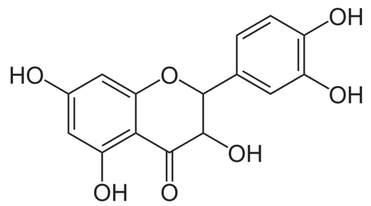
Selivanova I.A., ScD, Professor; Terekhov R.P., PhD, Associate Professor;
Pankov D.I., PhD student

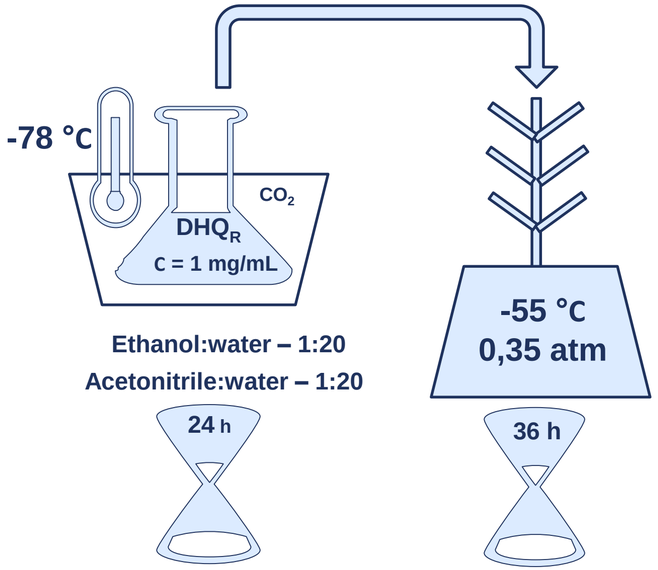
Synthesis and analysis of dihydroquercetin amorphous forms



Dihydroquercetin (DHQ)

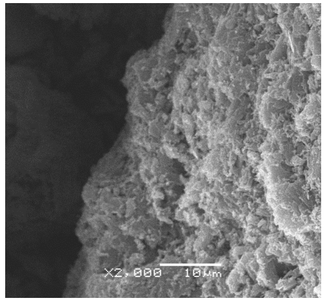
Objective: to evaluate opportunity of applying lyophilization as a approach in green modification of DHQ.

Scheme of synthesis

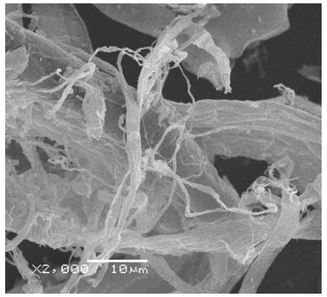


$$PMI = \frac{m_{total}}{m_{product}}$$

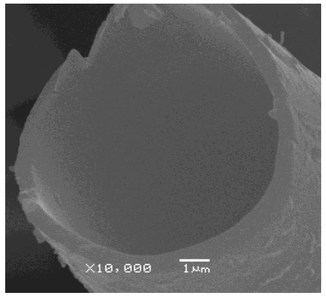
$$AE = \frac{M_{product}}{\sum M_{reactant}} \times 100\%$$



DHQ_R



DHQ_E

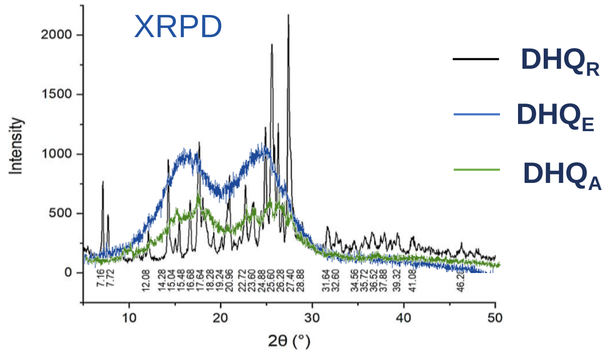


DHQ_A

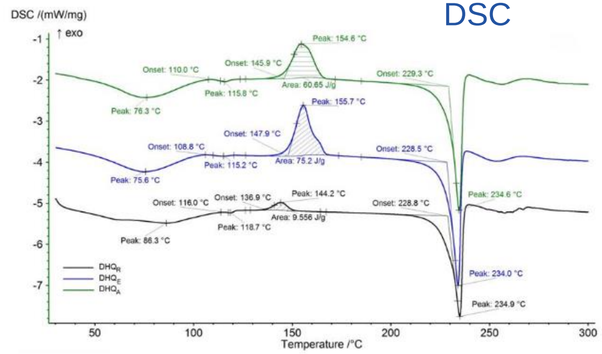
Results

Sample	Solubility		Yield, %	PMI	AE, %
	Term by European Pharmacopeia	By sedimentation method, mg/mL			
DHQ_R	very slightly soluble	0.70	-	-	-
DHQ_E	soluble	3.09	97.0	1.03	100
DHQ_A	slightly soluble	2.14	95.6	1.05	100

XRPD



DSC



The DHQ lyophilizates obtained via ecofriendly technologies are better soluble in water at room temperature

DHQ_R – dihydroquercetin raw substance
DHQ_E – ethanolic lyophilizate of dihydroquercetin
DHQ_A – acetonitrilic lyophilizate of dihydroquercetin