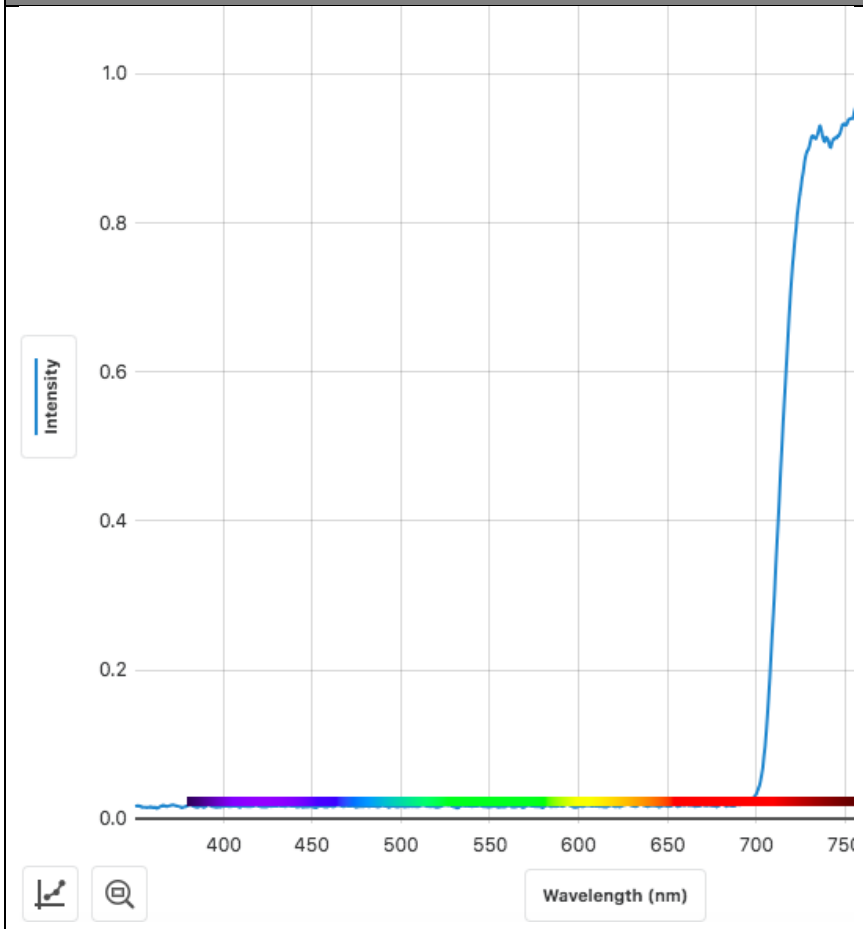
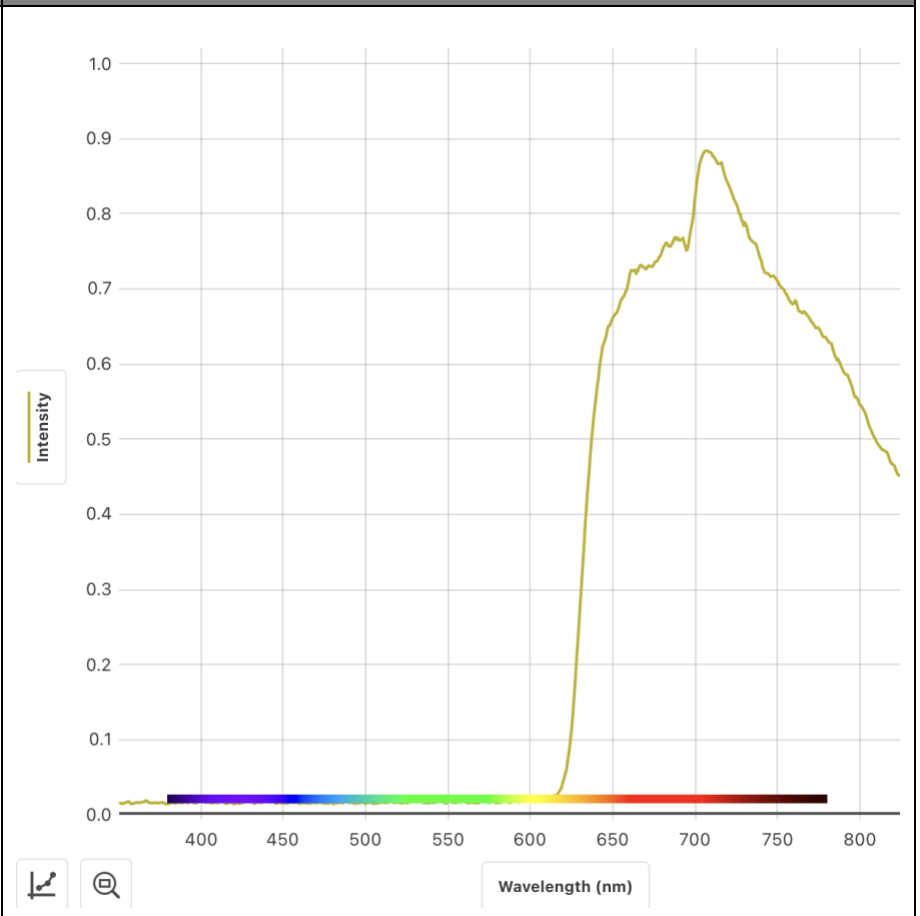
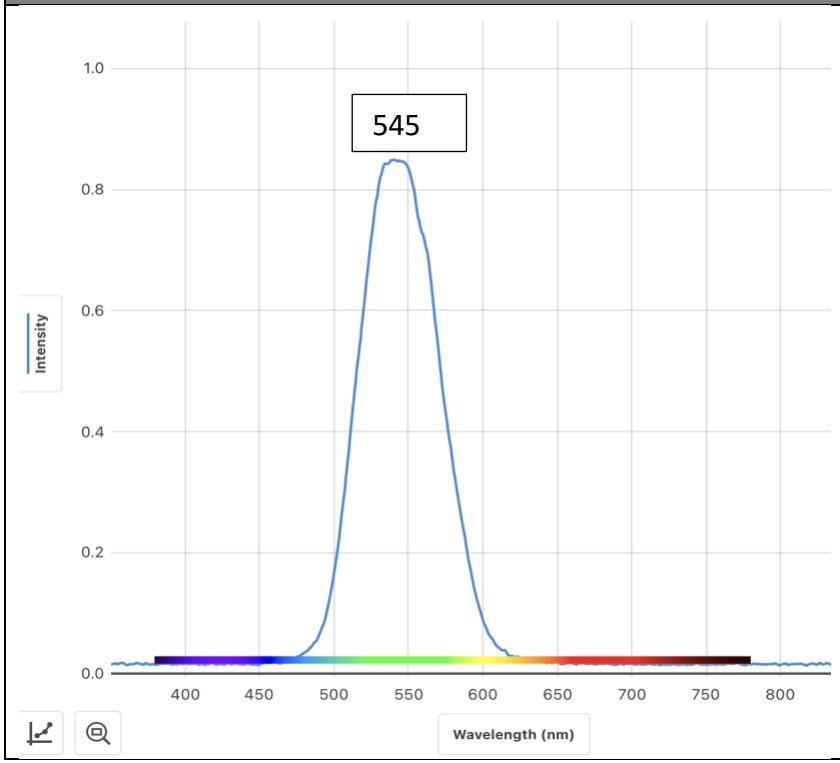
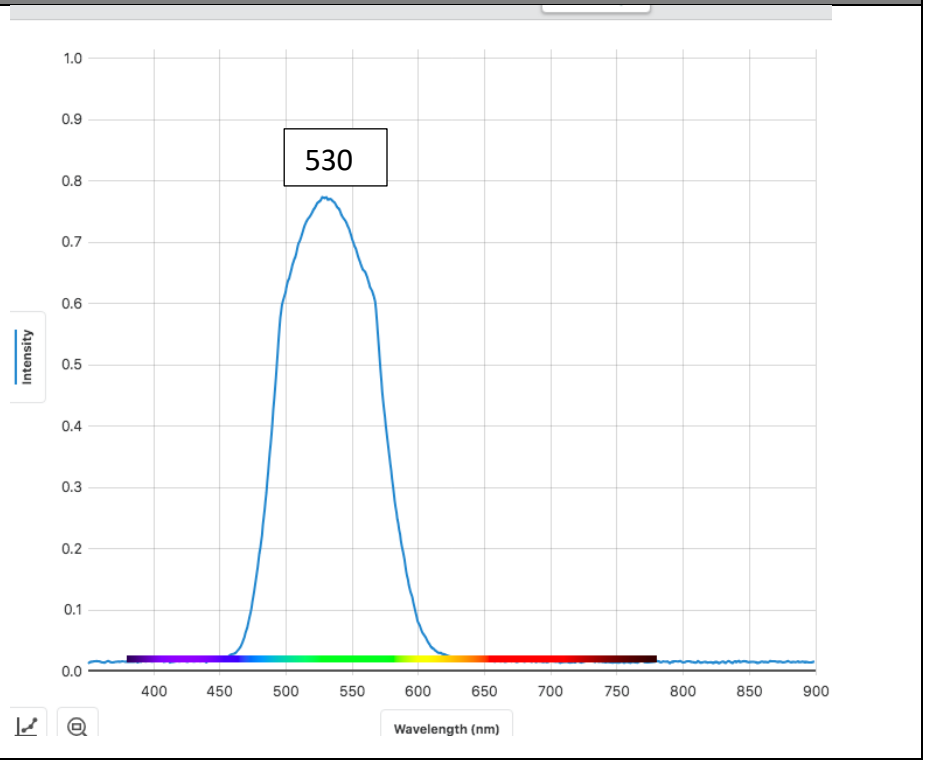
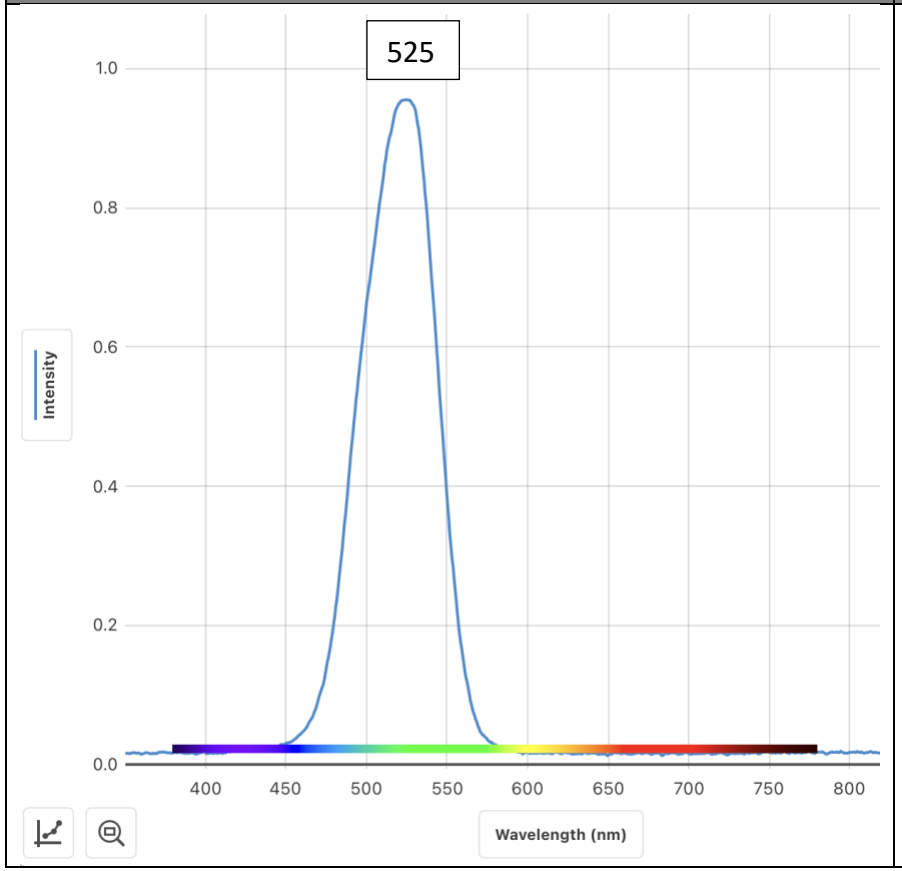
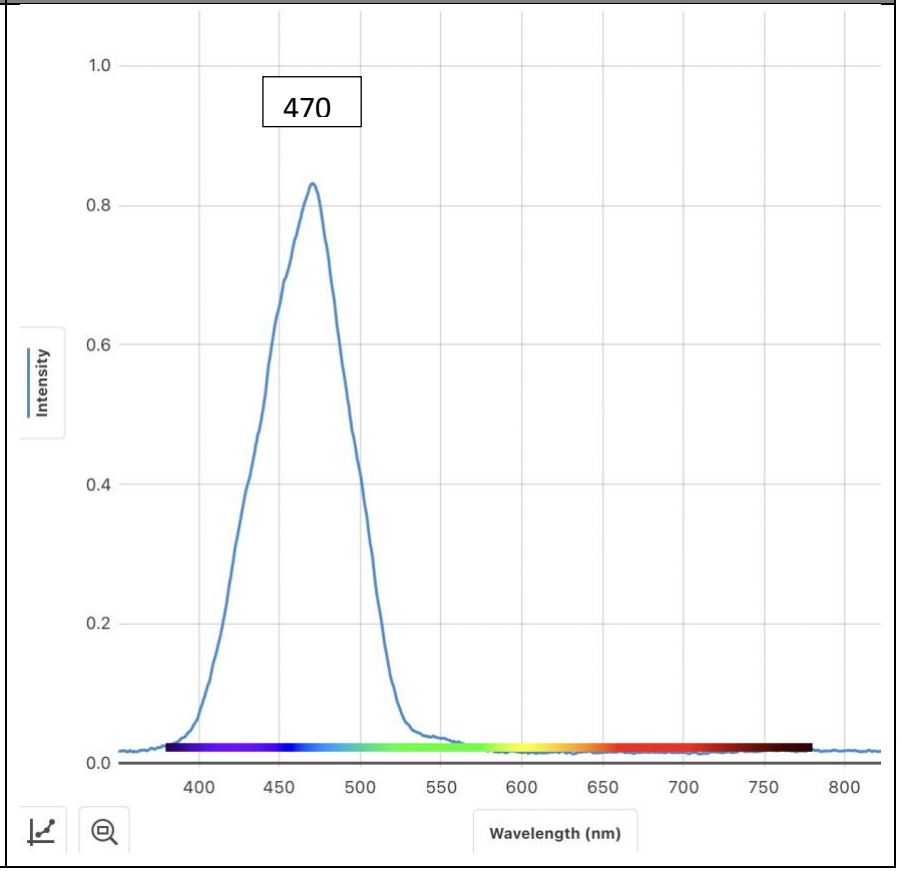
College Syntonic Filter Spectral Transmissions – Vernier Emissions Spectrometer, 20w Halogen
Handout for Presentation at Annual CSO Conference, June 2023, Rapid City, SD

By Steven J. Curtis, OD, FCOVD, FNORA, FCSO

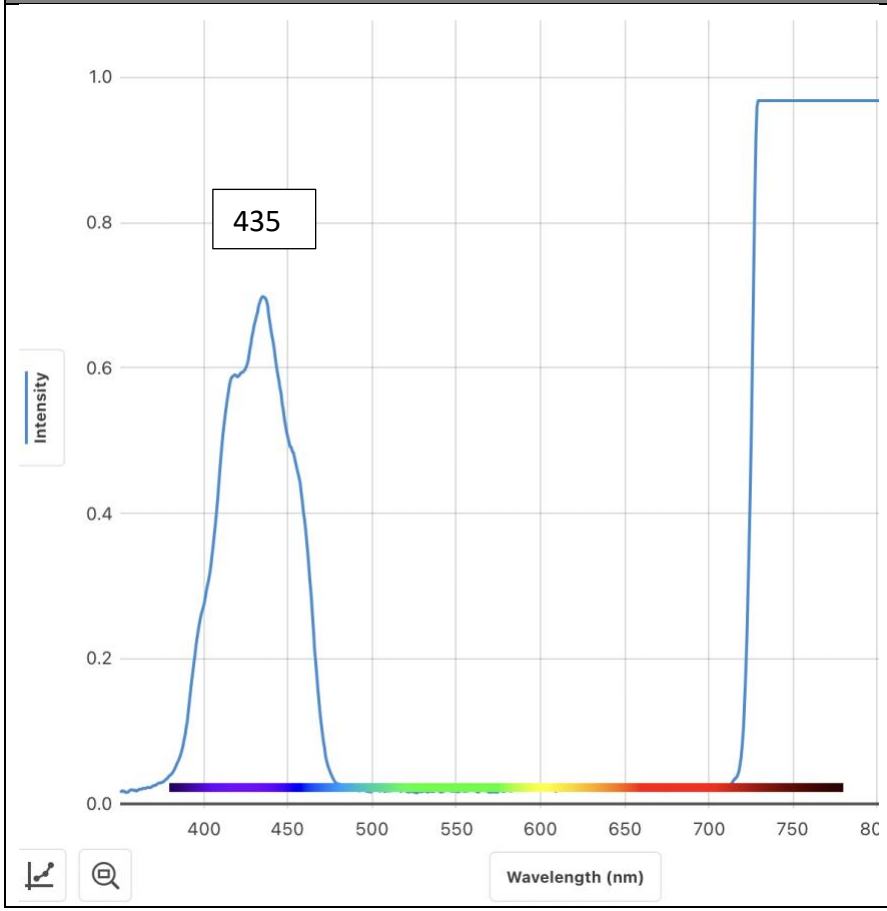
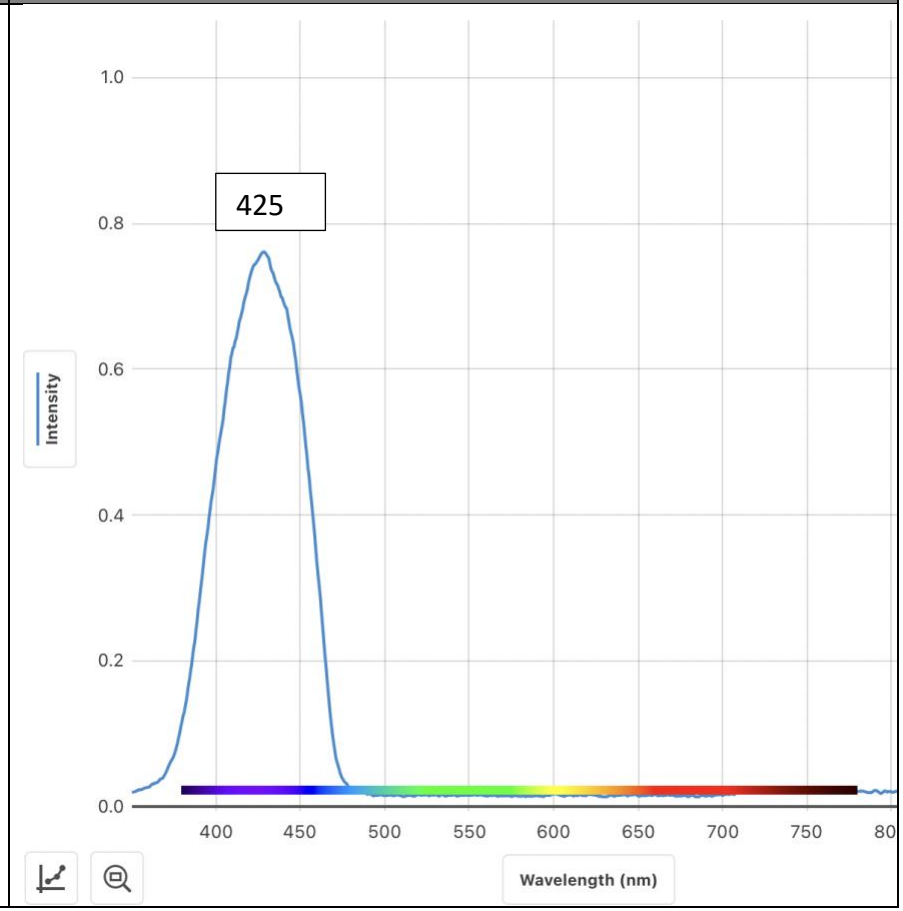
A/O	A/D
	

M/D	M/U
	

Pi/U	M/Pi
	

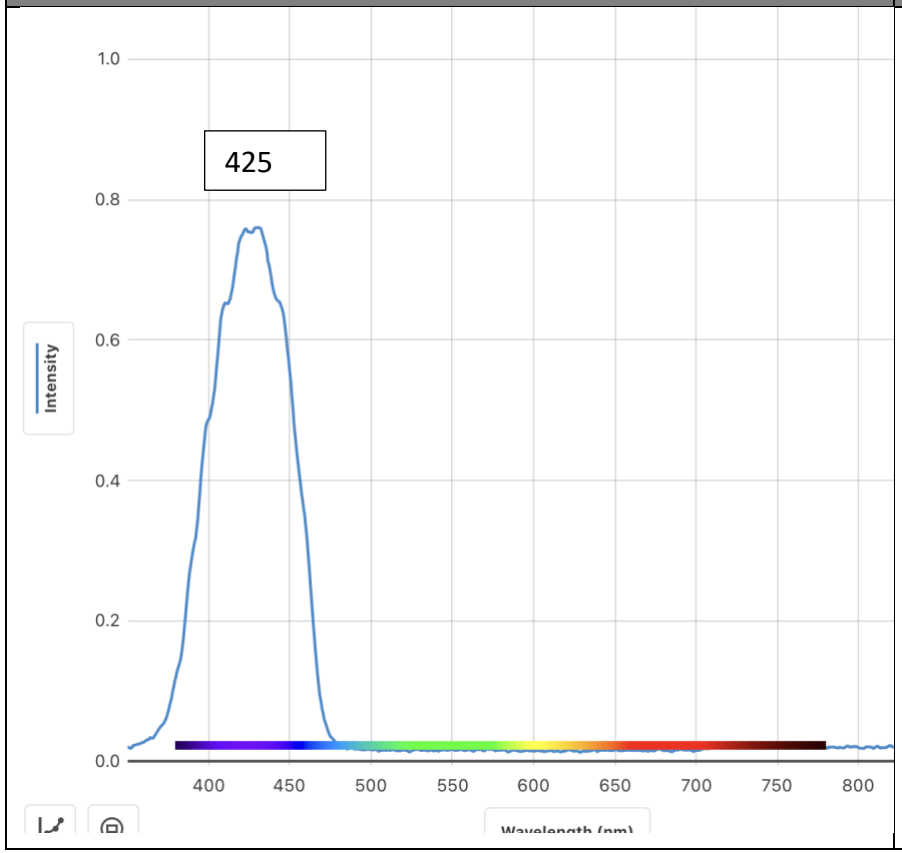
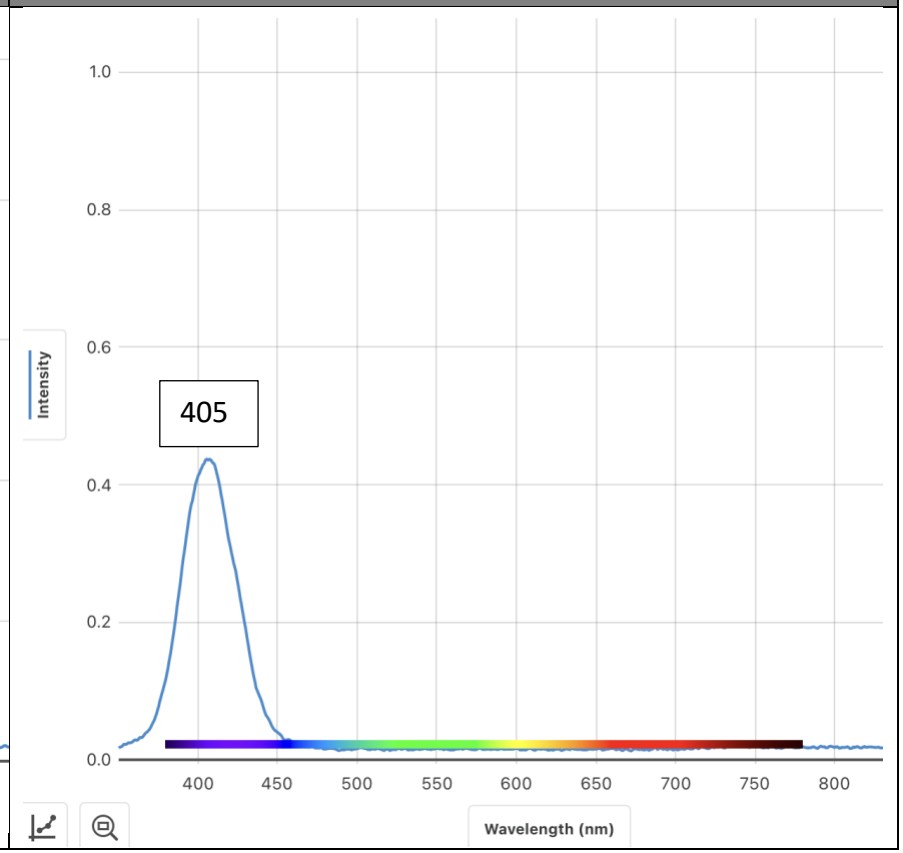
525
1.0
0.8
0.6
0.4
0.2
0.0
Intensity
400
450
500
550
600
650
700
750
800
Wavelength (nm)

470
1.0
0.8
0.6
0.4
0.2
0.0
Intensity
400
450
500
550
600
650
700
750
800
Wavelength (nm)

Pi/O	U/O
	

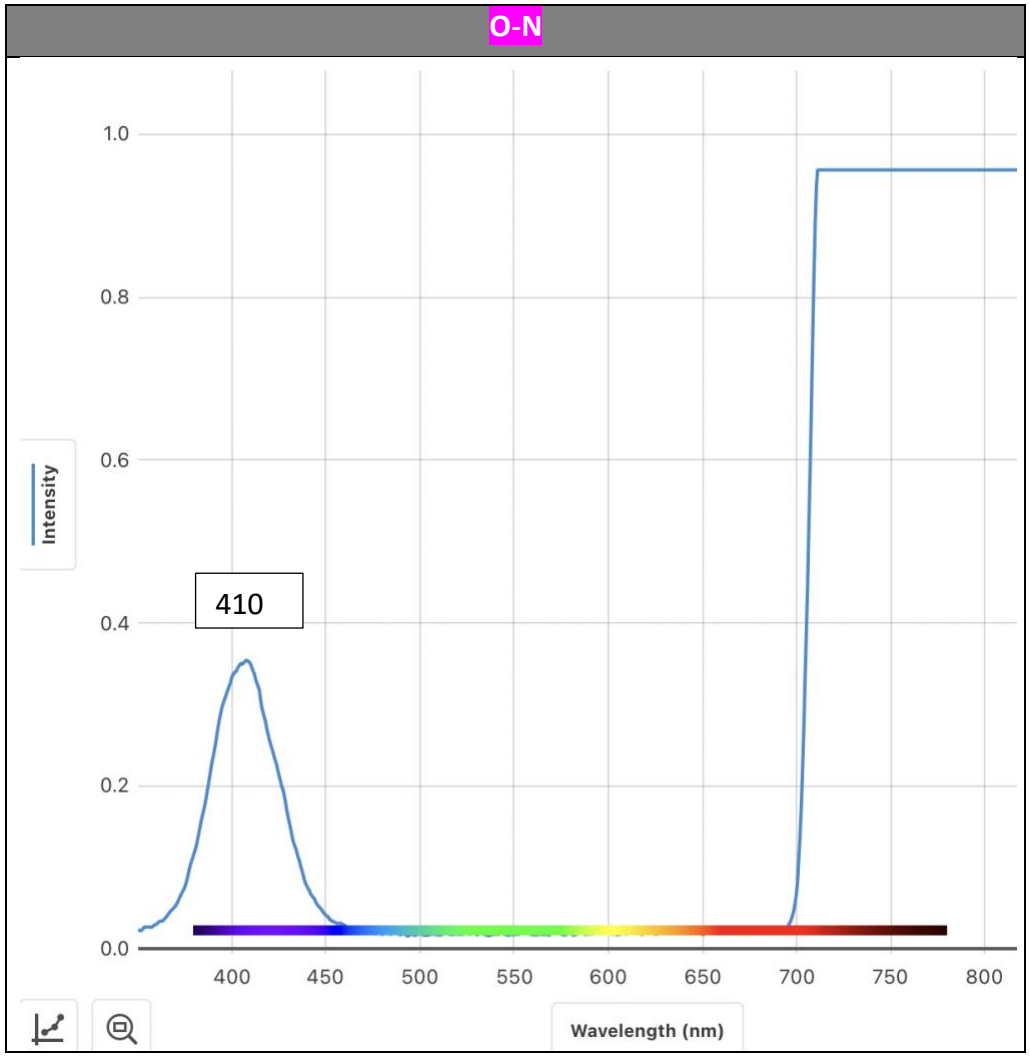
435
Intensity
1.0
0.8
0.6
0.4
0.2
0.0
400
450
500
550
600
650
700
750
Wavelength (nm)

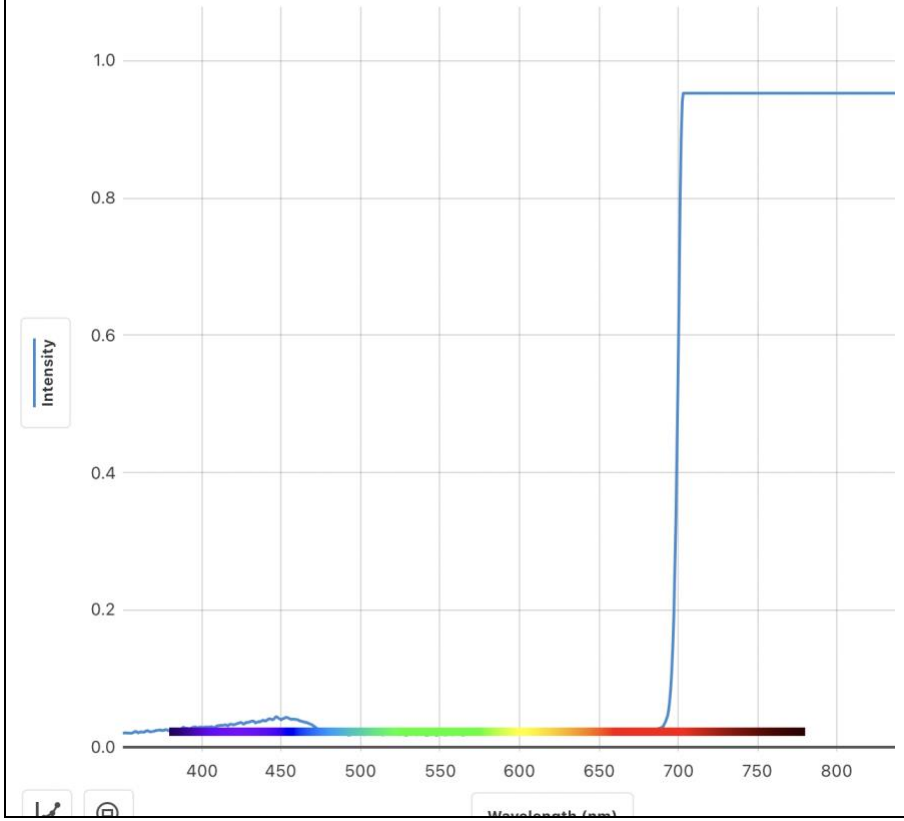
425
Intensity
1.0
0.8
0.6
0.4
0.2
0.0
400
450
500
550
600
650
700
750
Wavelength (nm)

U/O-D	U/O-N
	

425
1.0
0.8
0.6
0.4
0.2
0.0
Intensity
400
450
500
550
600
650
700
750
800
Wavelength (nm)

405
1.0
0.8
0.6
0.4
0.2
0.0
Intensity
400
450
500
550
600
650
700
750
800
Wavelength (nm)


O-N
1.0
0.8
0.6
0.4
0.2
0.0
Intensity
410
400
450
500
550
600
650
700
750
800
Wavelength (nm)

D/O	
 1.0 0.8 0.6 0.4 0.2 0.0 Intensity 400 450 500 550 600 650 700 750 800	

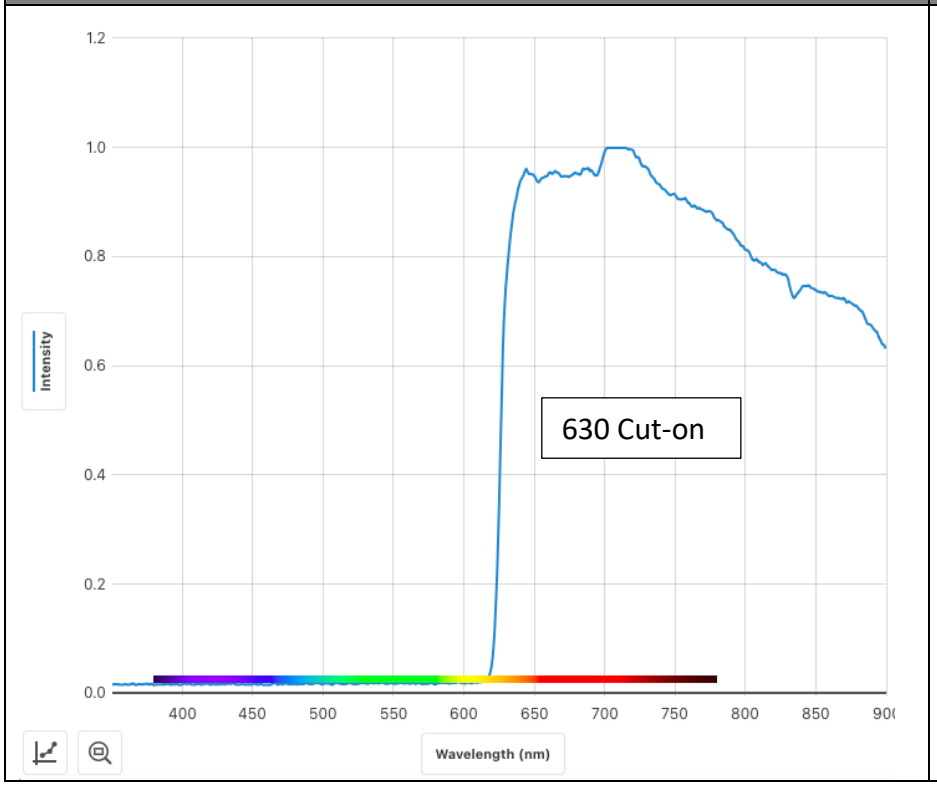
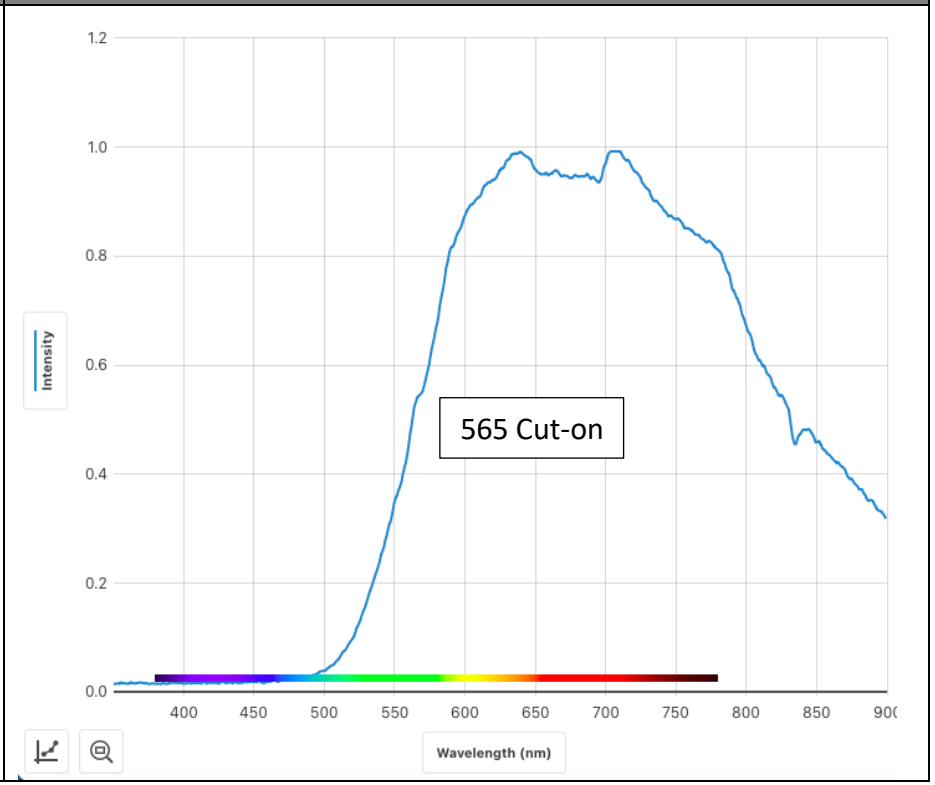
Based on the above spectral transmission curves, the following observations are proposed:

1. Mu/Pi should be proposed as a new parasympathetic option because Mu/U can sometimes be too bright and U/O can sometimes be too depressant. Since Mu/Pi exhibits transmission between Mu/U and U/O, it could represent an effective "happy medium" option.

2. U/O and U/O-D are virtually the same. Thus, U/O-D might not be a necessary filter option. This is because Depressant has a very low optical density and Omega has a high optical density, thus depressant is not able to add effect.

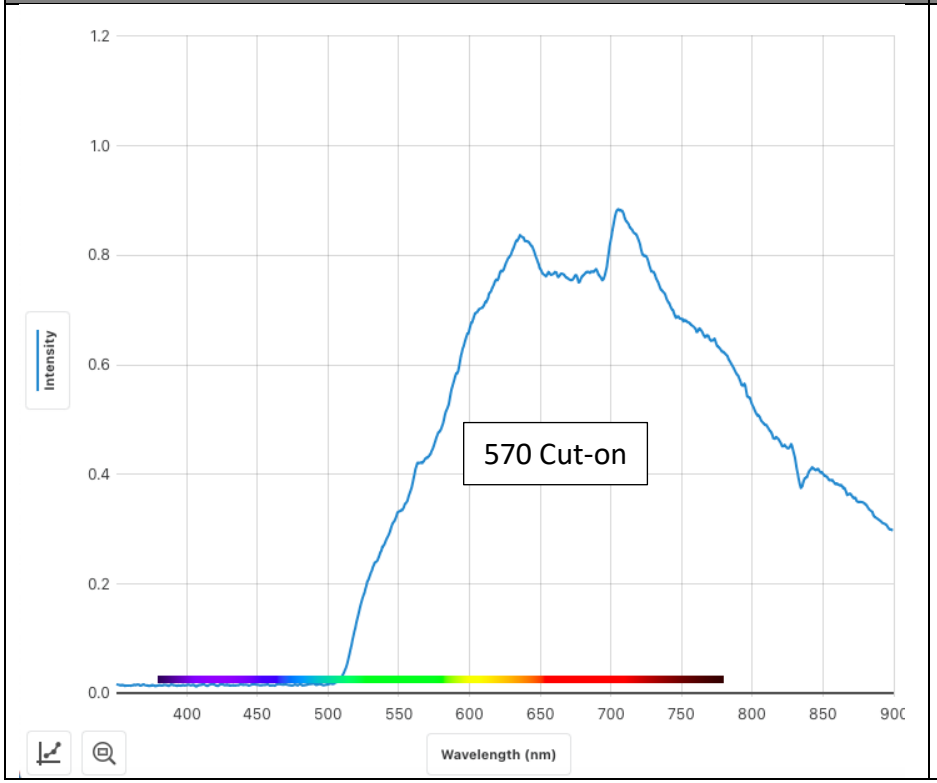
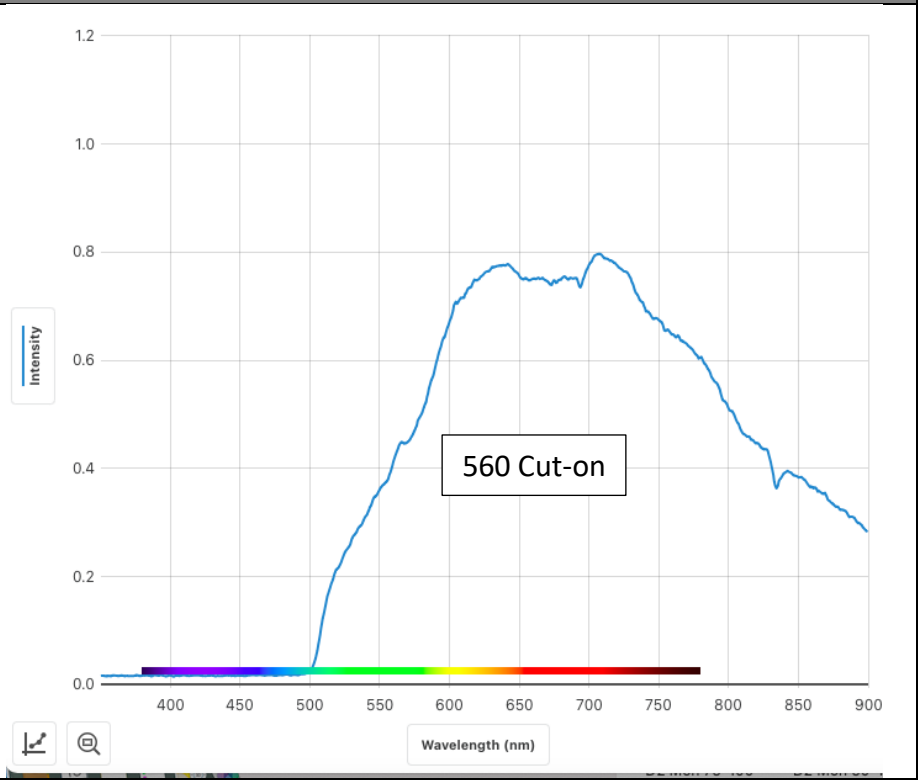
3. Because of #2, U/O-N should be the preferred stronger depressant to use when U/O is not depressant enough.

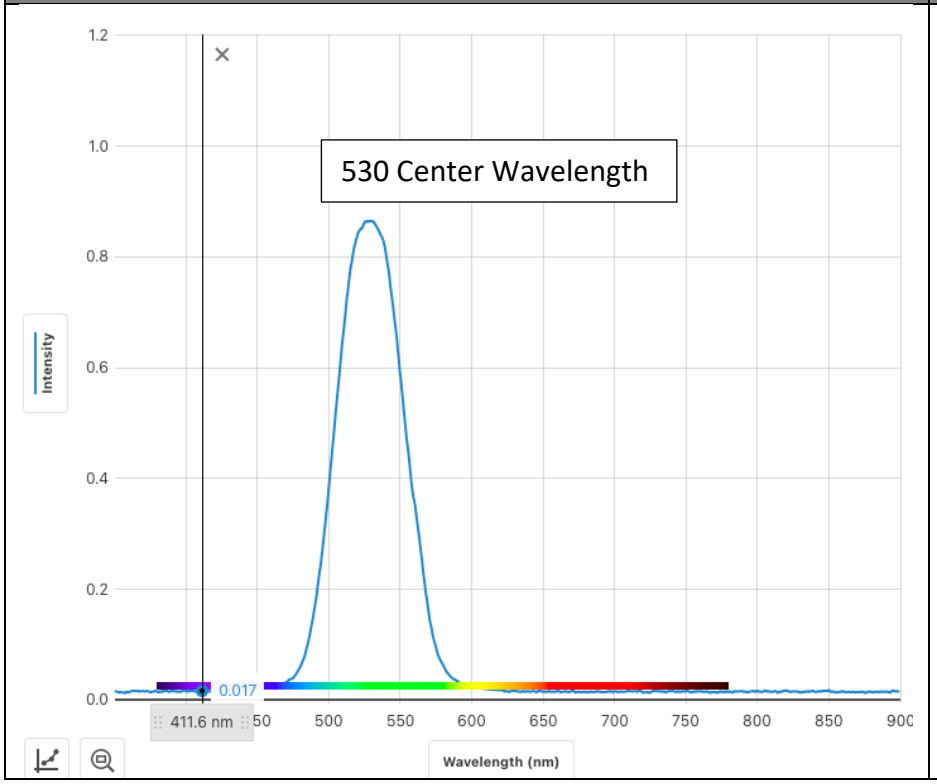
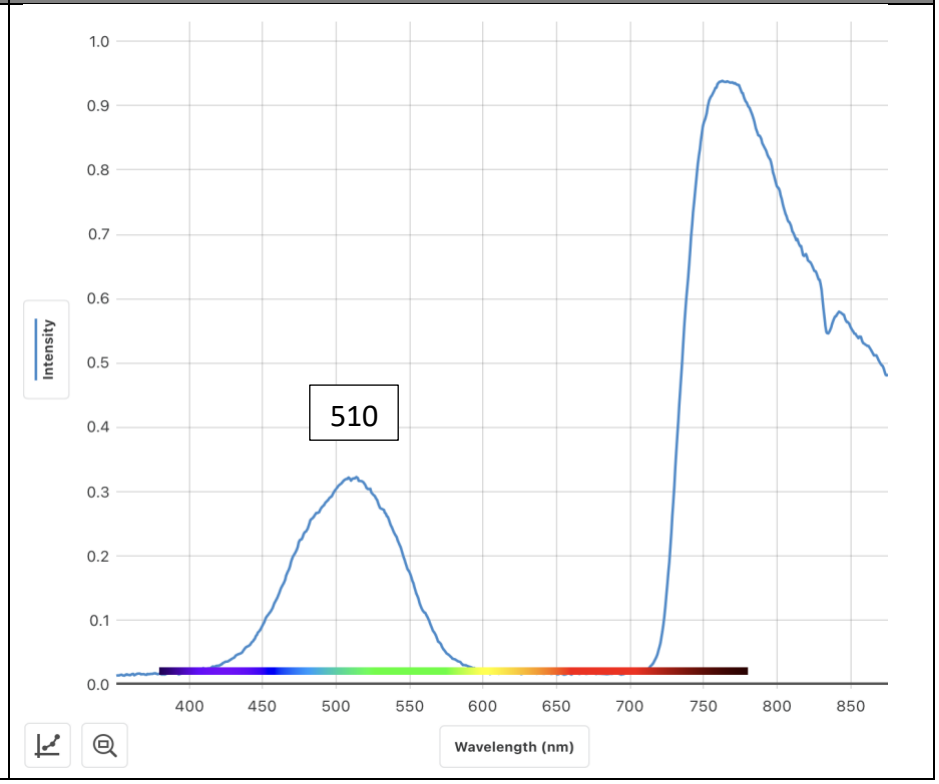
4. U/O-N and O-N are very similar. Thus, one might argue that they are interchangeable, other than O-N allows a little red to come through.

Alpha	Delta
	

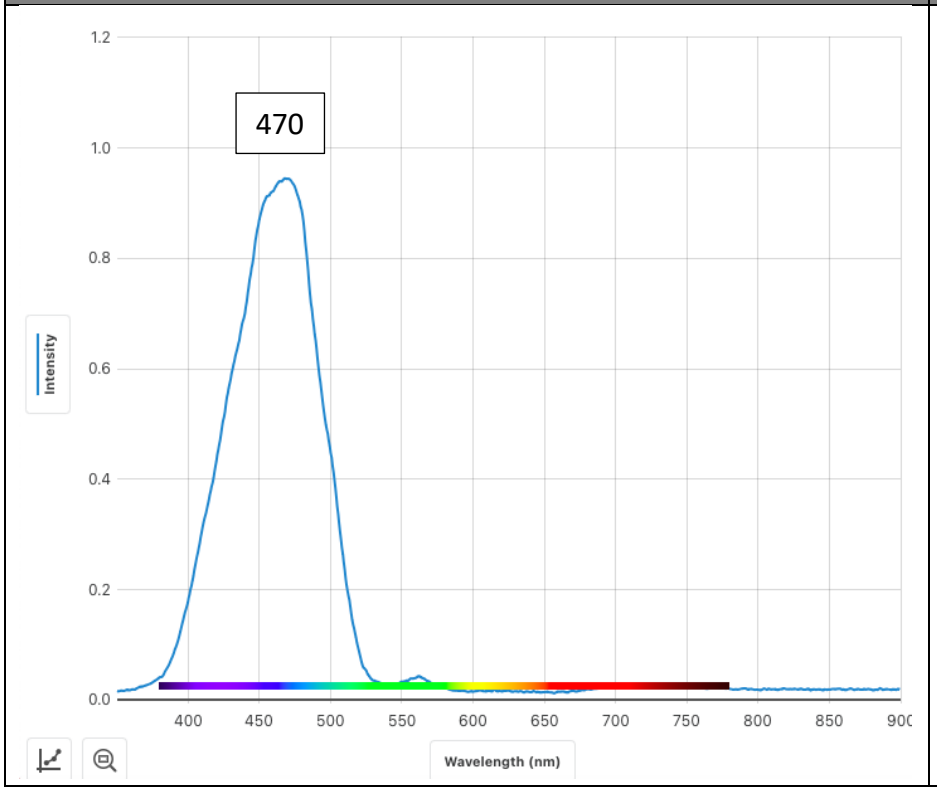
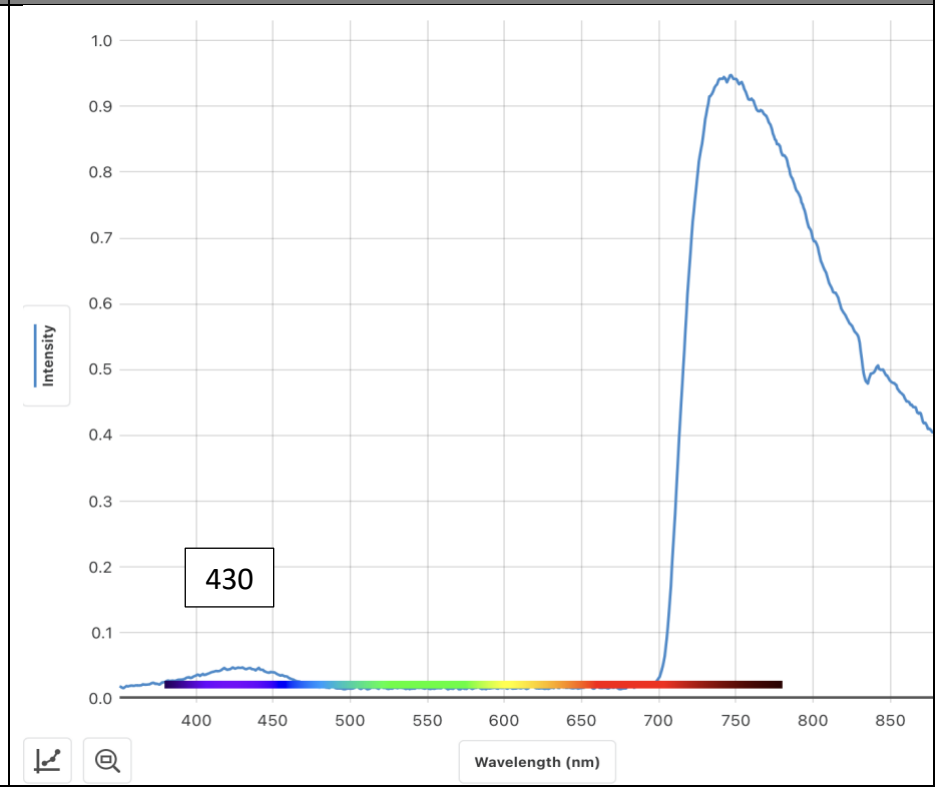
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Intensity
630 Cut-on
400 450 500 550 600 650 700 750 800 850
Wavelength (nm)

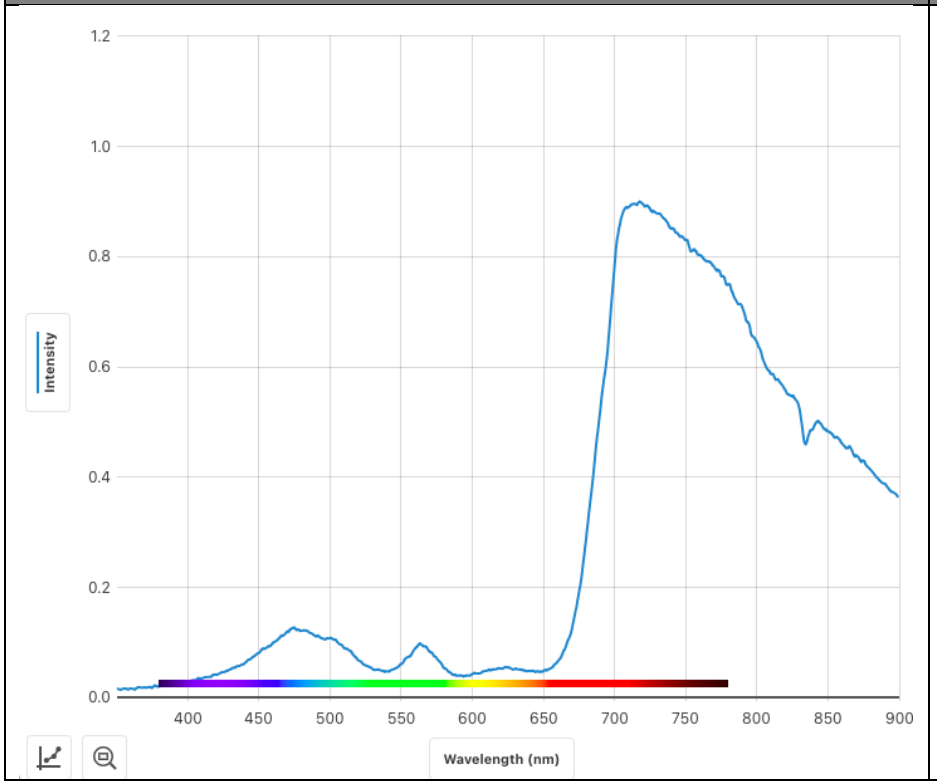
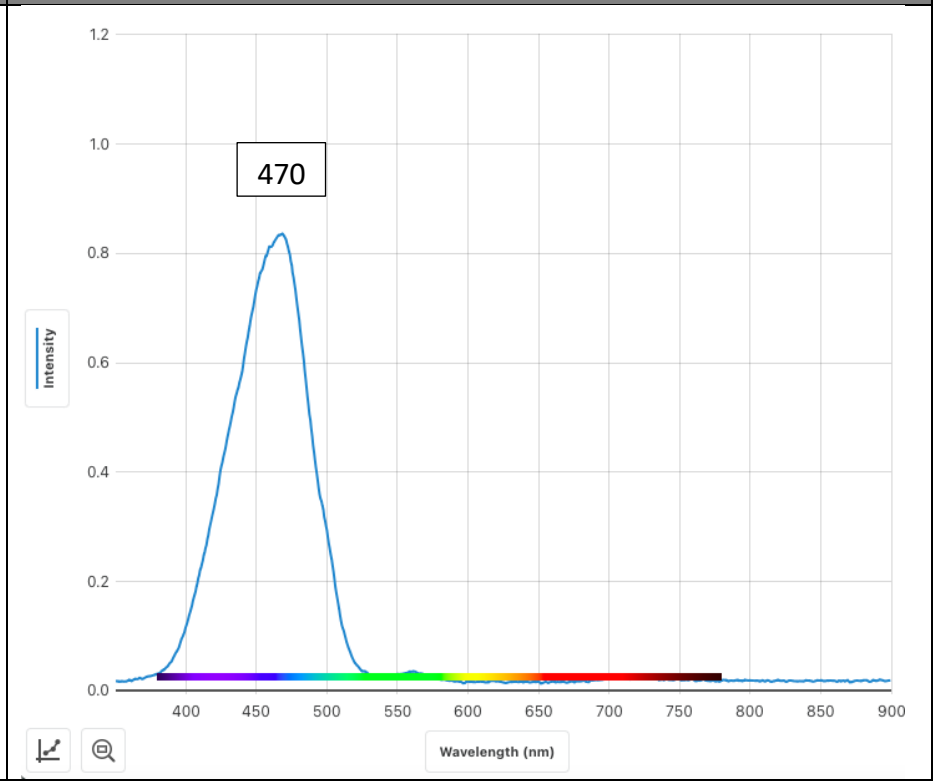
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Intensity
565 Cut-on
400 450 500 550 600 650 700 750 800 850
Wavelength (nm)

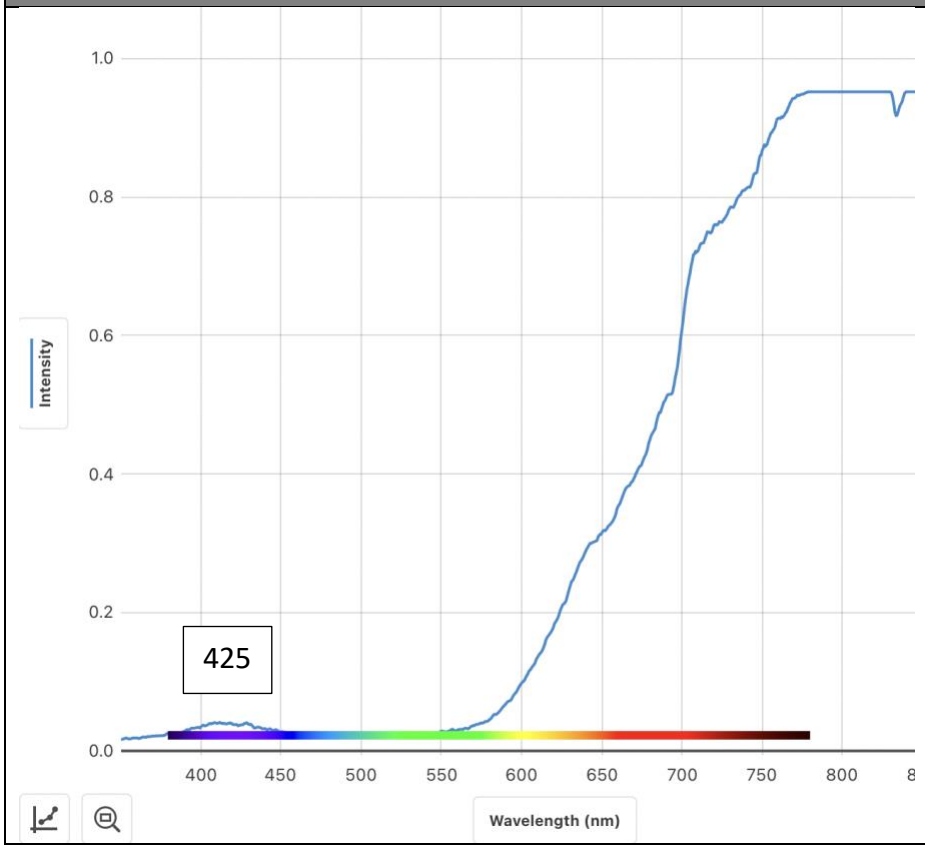
Theta	Stimulant
	

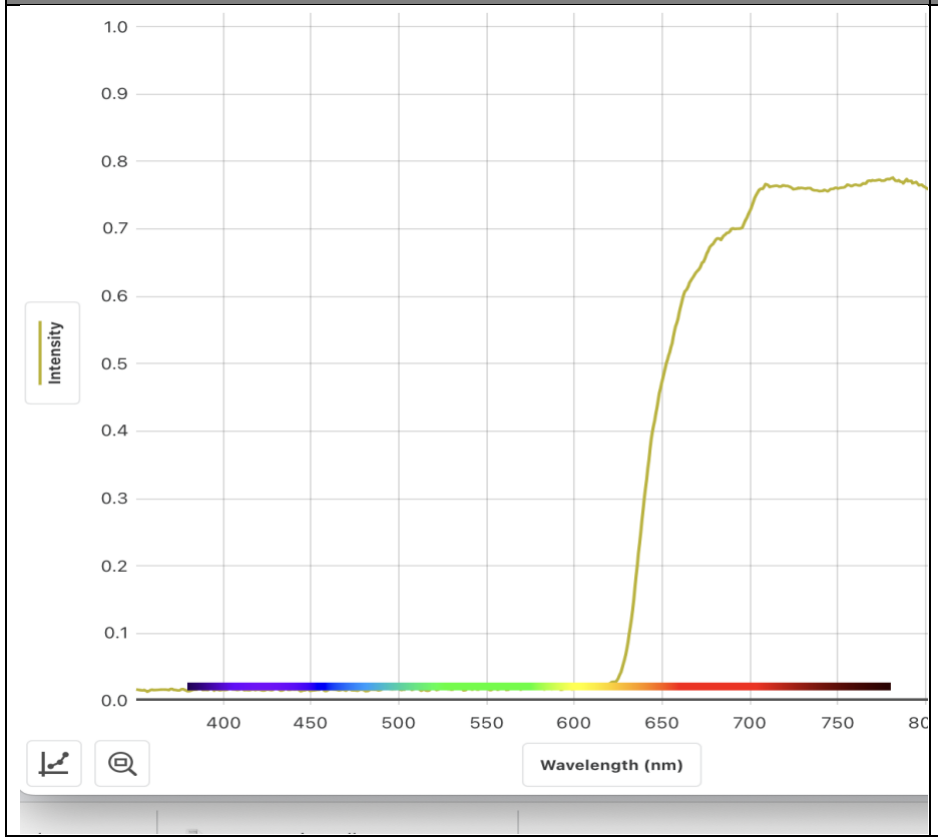
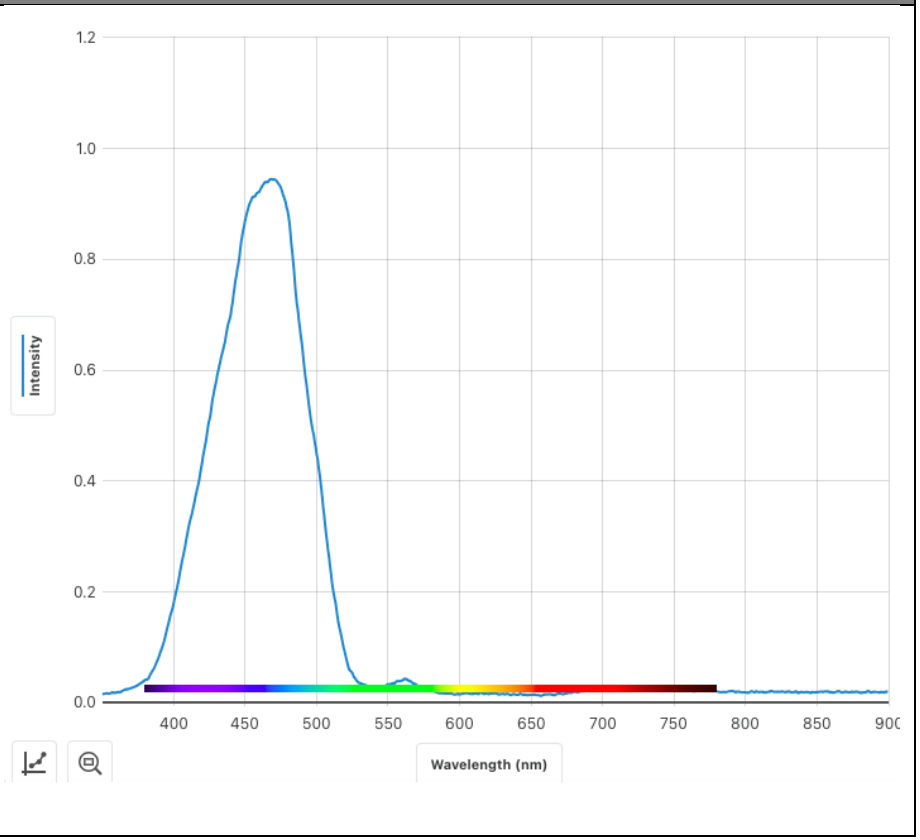
Mu	Pi
	

530 Center Wavelength
Intensity
Wavelength (nm)
0.017
411.6 nm
510
Intensity
Wavelength (nm)

Upsilon	Omega
	

Depressant	Lambda
	

Neurasthenia	
	

Nascentization Red (Alpha)	Nascentization Blue (Upsilon)
	

Based on the above spectral transmission curves, the following observations are proposed:

1. Theta, Delta, and Stimulant have very similar (nearly identical) spectral transmission curves. Their Cut-on Wavelengths are 570, 565, 560, respectively. Therefore, they may be interchangeable to some extent.

2. Lambda and Upsilon are nearly identical spectral transmission curves. Therefore, they may be interchangeable.