University Pardubice
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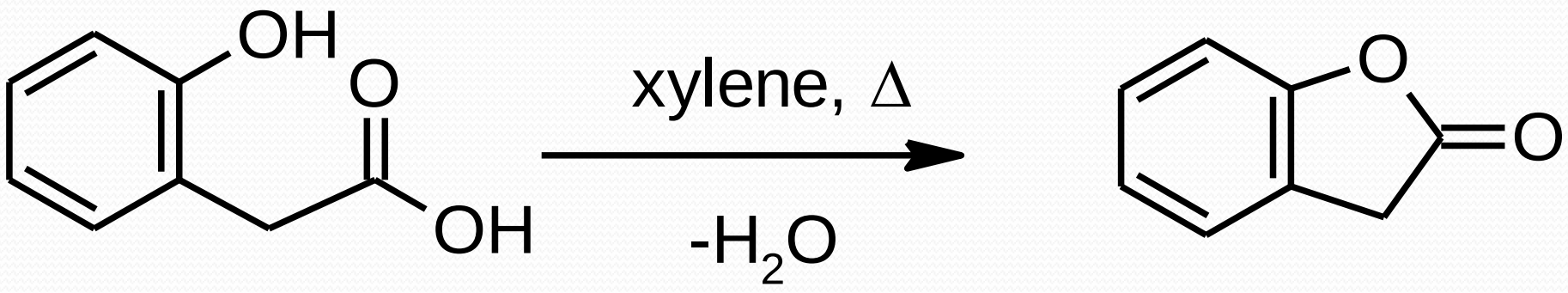
SYNTHESIS OF SUBSTITUED 5-(2-HYDROXYPHENYL)-1,3-THIAZOL- 4-OLES AS pH SWITCHABLE FLUOROPHORES

Ing. Richard Kammel

Lactonization (2-hydroxyphenyl)acetic acid

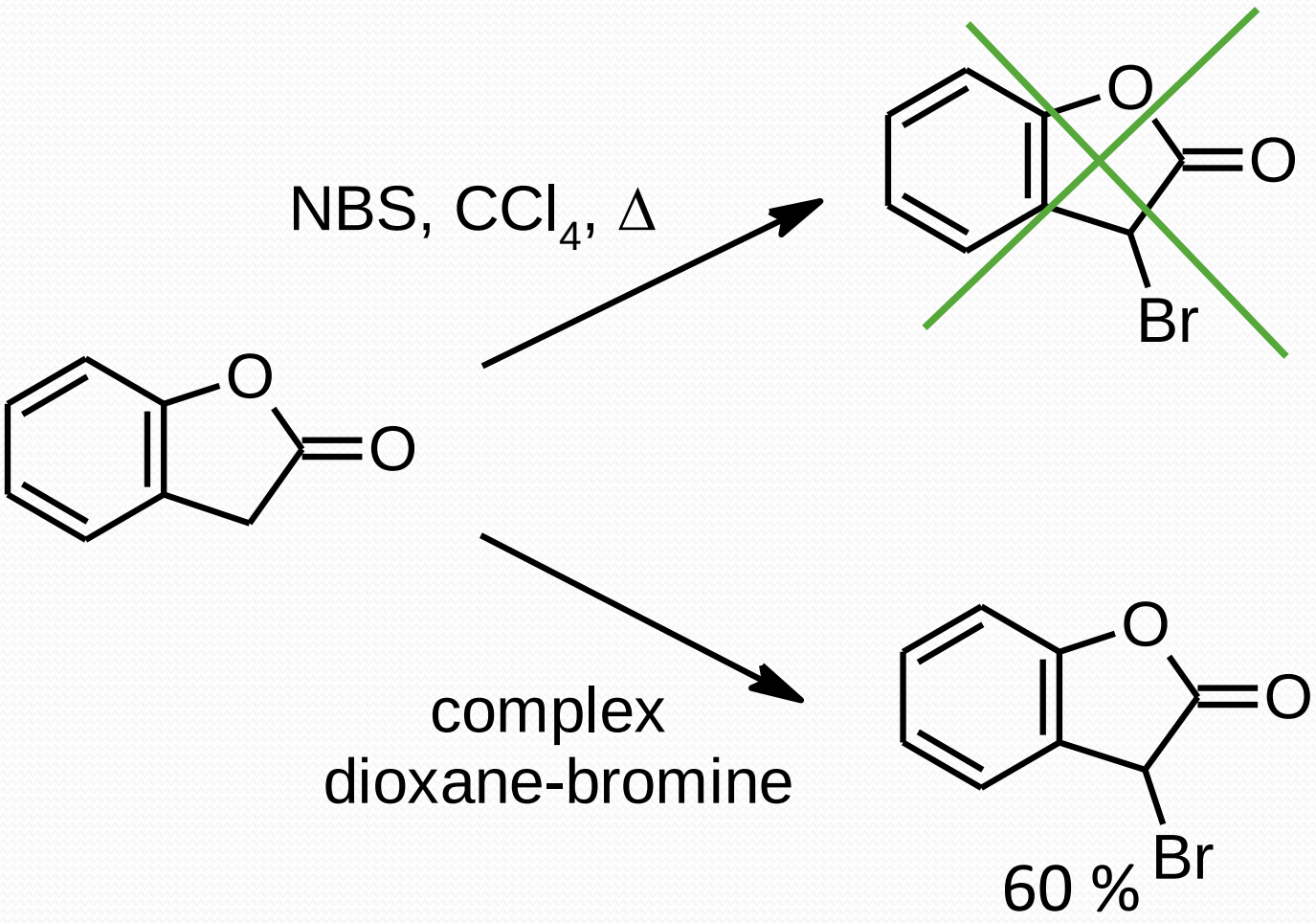


83 %

Kadin S. B.: *J. Med. Chem.* **1972,** *15,* 551-552

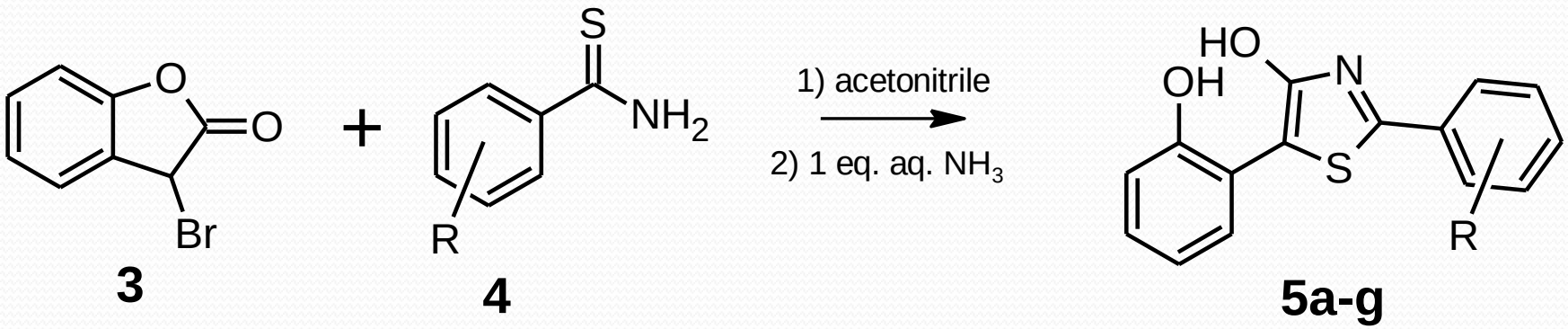
Kotten I. A.; Sauer R. J.: *Org. Synth.* **1973**, *Coll. Vol. 5*,145; **1962**, *Vol. 42*, 26.

Lactone bromination



Kotten I. A.; Sauer R. J.: *Org. Synth.* **1973**, *Coll. Vol. 5*,145; **1962**, *Vol. 42*, 26.
Abramenko P. I., Zhiryakov V. G.: *Chem. Heterocycl. Comp.* **1977**, *13*, 1194-119

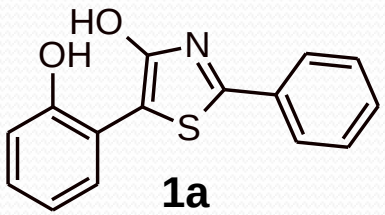
Preparation of 1,3-thiazol-4-oles



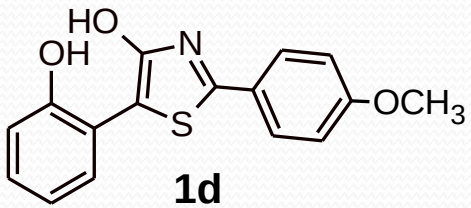
	R	Yield[%]	m.p. [°C]
a	H	75	221-226
b	4-CH_3	83	238-250
c	4-CF_3	79	229-235
d	4-CH_3O	69	228-235
e	4-tBu	87	252-256
f	4-Cl	68	245-250
g	3-Cl	73	223-230

Characterization : ^{1}H, ^{13}C NMR, elemental analysis, m.p., HRMS

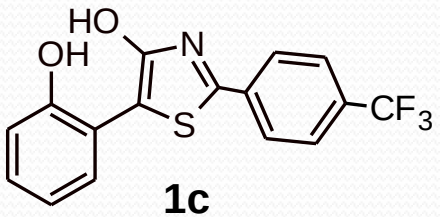
Spectral properties



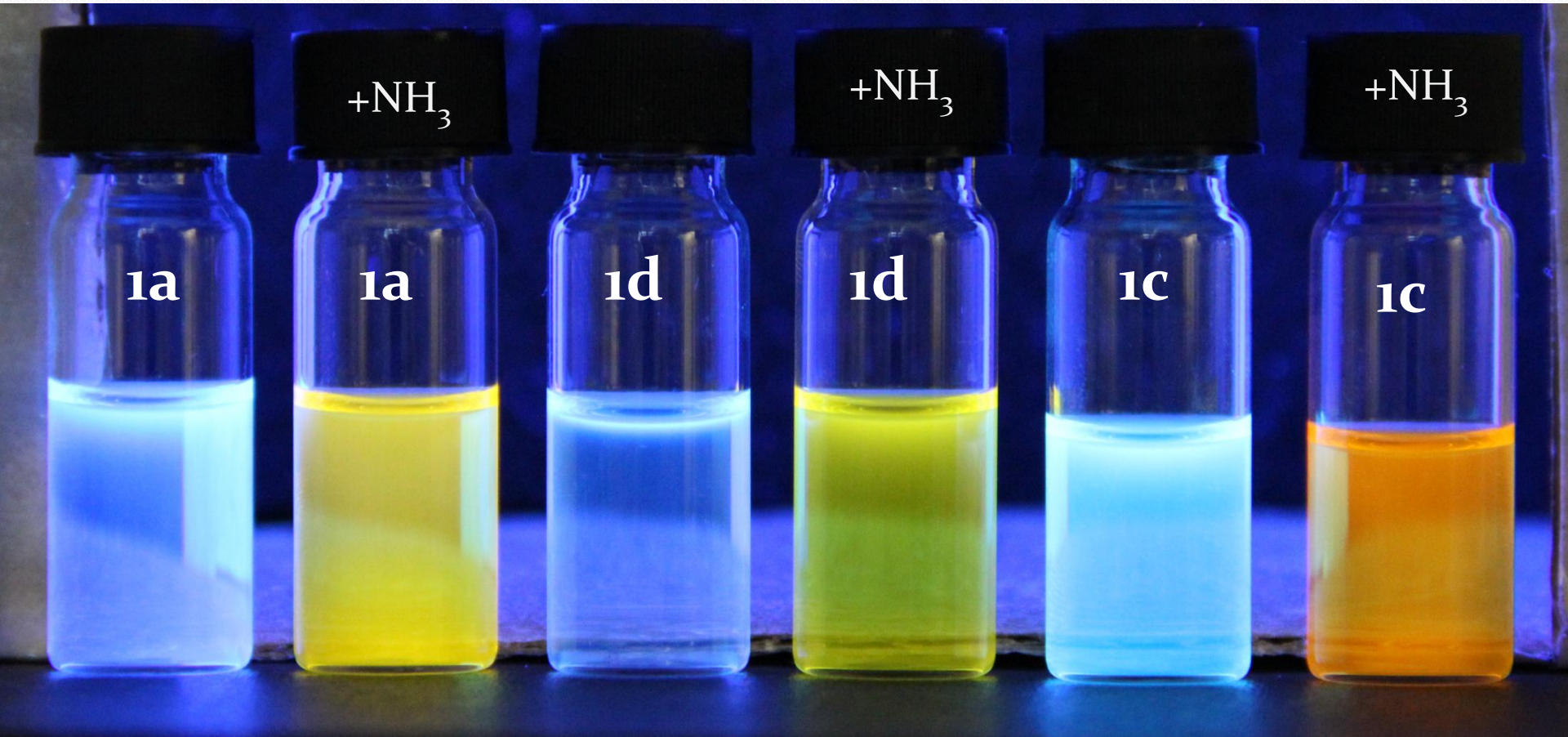
1a



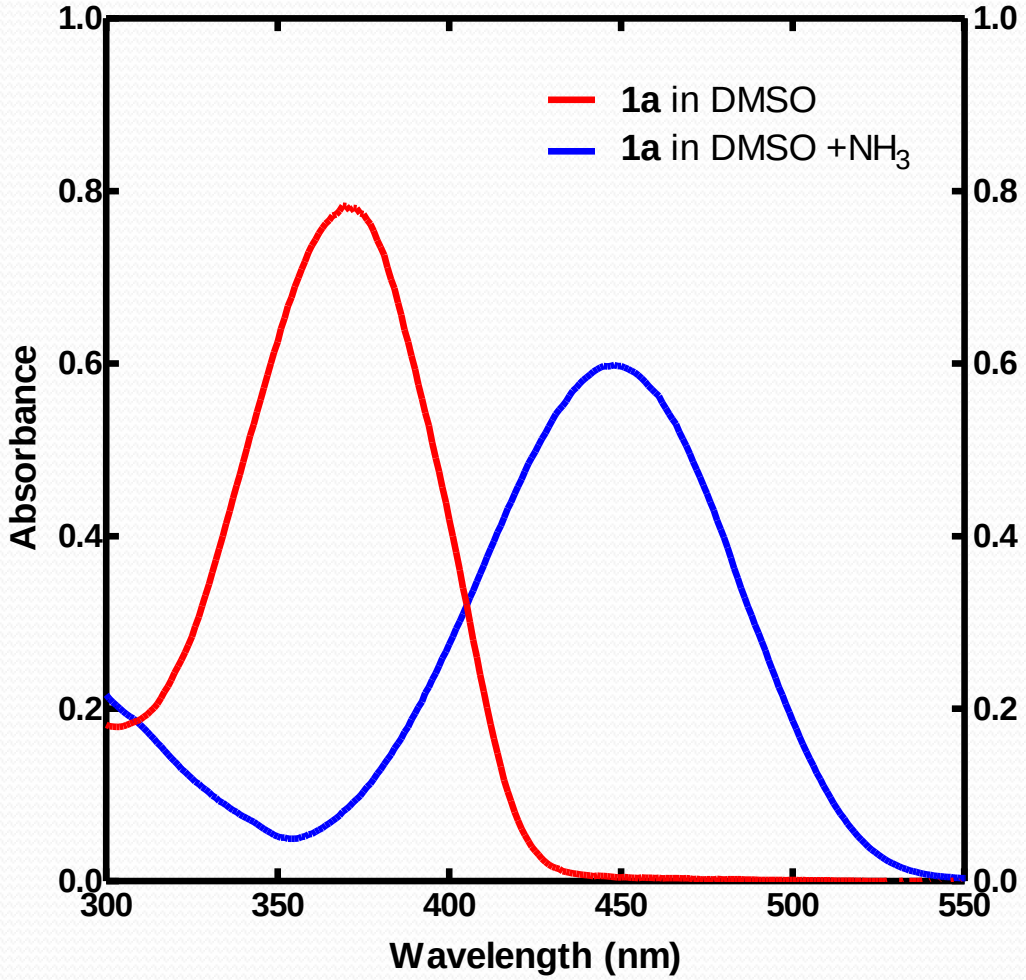
1d



1c

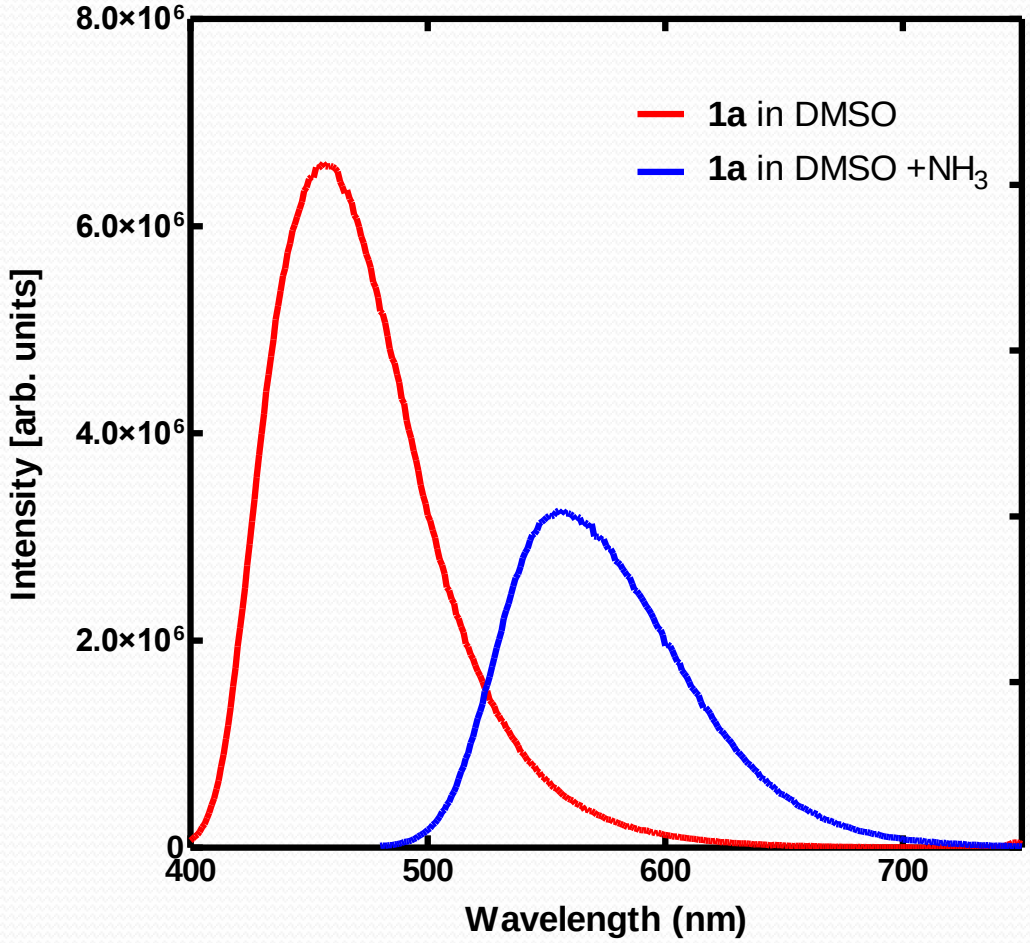


UV-VIS spectra



*UV-VIS spectrum of **1a** in DMSO (RED) and in DMSO with small amount of aq ammonia (BLUE)*

Fluorescence spectra



*Fluorescence spectrum of **1a** in DMSO (RED) and in DMSO with small amount of aq. ammonia (BLUE)*

Spetral properties

	a	b	c	d	e	f	g
A_{max} [nm]	373	372	390	372	373	380	382
A_{max} (+NH_3) [nm]	448	447	476	439	448	459	463
F_{max} [nm]	455	455	480	455	455	465	468
F_{max} (+NH_3) [nm]	555	555	590	550	555	570	575
Φ (quantum yield)	0.98	0.75	0.90	0.30	0.95	~1	0.92
Φ (+NH_3)	0.37	0.24	0.16	0.20	0.28	0.26	0.25

Absorption and emission wavelength of thiazoles measured in DMSO and calculated quantum yield.