

Supporting information

Recycling of Substandard Rocket Fuel N,N-Dimethylhydrazine via the Involvement of Its Hydrazones Derived from Glyoxal, Acrolein, Metacrolein, Crotonaldehyde, and Formaldehyde in Organic Synthesis.

Elizaveta Ivanova¹, Margarita Osipova¹, Tatyana Vasilieva¹, Alexey Eremkin¹, Svetlana Markova¹, Ekaterina Zazhivihina¹, Svetlana Smirnova¹, Elena Turusova¹, Yurii Mitrasov² and Oleg Nasakin^{1,}*

¹Ulyanov Chuvash State University, Moskovsky pr., 15, Cheboksary 428015, Russia

²Organic and Pharmaceutical Chemistry Department, Yakovlev Chuvash State Pedagogical University, K. Marx Street, 38, 428000, Cheboksary, Russia

**Corresponding author. Tel.: +7 903 345 57 33 (Oleg E. Nasakin); +7 961 340 01*

81 (Elizaveta S.Ivanova).

E-mail address: ecopan21@inbox.ru (O.E. Nasakin), lizachimic@mail.ru (E.S. Ivanova)

Table S1. Inhibitory activity against kinaza p38 α , IC₅₀*10⁻⁶M.

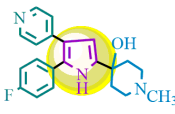
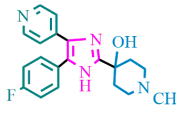
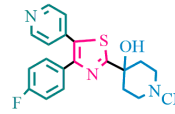
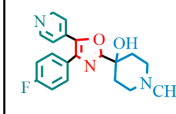
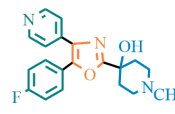
				
0.13	0.09	0.45	0.35	2

Table S2. Antibacterial activity. Diameter of the inhibitory zone (nm).

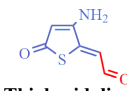
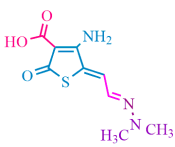
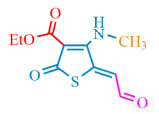
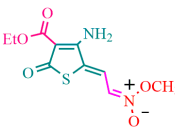
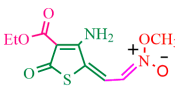
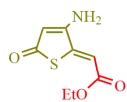
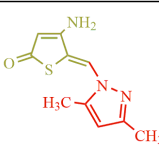
Compounds	<i>Mucor miehei</i>	<i>Paecilomyces varioti</i>	<i>Penicillium notatum</i>	<i>Nematospora coryli</i>
 Thiobasidalin	15	11	-	16
	-	-	-	-
	20	20	12	22
	15	11	-	13
	18	15	-	15
	11	10	-	9
	9	9	-	10

Table S3. Antifungal activity. Diameter of the inhibitory zone (nm).

Compounds	<i>Bacillus subtilis</i>	<i>Bacillus brevis</i>	<i>Micrococcus luteus</i>	<i>Nematospora coryli</i>
 Thiobasidalin	-	-	-	-
 10	10	19	-	-
 8	8	-	-	-
 19	19	-	-	20

Table S4. Antitumor activity of compounds **98** and **101** (IC₅₀*10⁻⁶M).

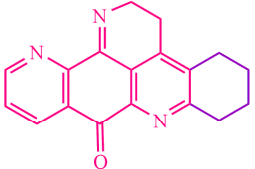

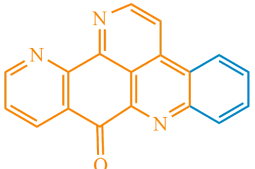
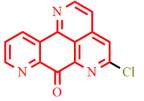
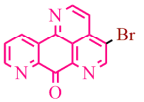
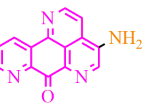
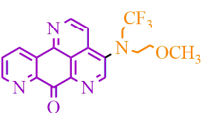
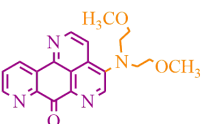
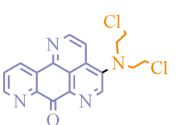
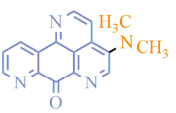
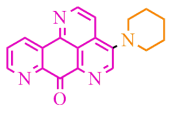

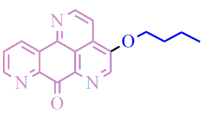
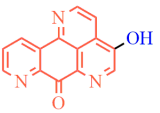
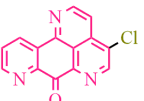
Compounds	p-388	A-549	HT-29	MEL-28
 98	1.74	0.04	0.3	0.17
 101	>35.9	45	18.0	18.0
 Ascidiemin	0.4 ^[81]		0.3 ^[81]	

Table S5. Antitumor activity (IC₅₀*10⁻⁶M).

Compounds	U-87MG	U-373MG	SW1088	T24	J82	HCT-15	LoVo	MCF7	T-47D	A-549	A-427	PC-3
	5	5	7	6	>10	6	6	7	>10	6	5	>10
	2	5	5	6	6	4	5	4	5	7	4	6
	3	5	4	4	>10	6	6	2	9	5	7	7
	0.9	0.4	0.1	0.08	4	0.7	0.2	0.3	0.9	6	2	0.7
	0.9	0.7	0.009	0.009	>10	0.9	0.8	0.5	>10	1	0.08	0.007
	0.09	0.05	0.05	0.02	0.5	0.08	0.03	0.02	0.6	0.5	0.4	0.05
	0.7	0.6	0.5	0.5	0.7	0.9	4	0.5	5	0.6	0.3	0.6
	0.08	0.3	0.002	0.0004	5	0.09	0.06	0.009	0.006	0.7	0.006	0.0004
	0.05	0.07	0.08	0.06	0.8	0.09	0.7	0.06	6	0.05	0.07	0.08
	2	0.6	4	0.7	4	3	4	0.8	4	6	0.6	0.5
	>10	>10	>10	>10	>10	>10	>10	>10	>10	8	>10	>10
	6	5	5	5	3	6	6	2	4	5	3	6