Stark assembly. It was then cooled to room temperature and left overnight. The resulting solid was washed with hexane and recrystallised from benzene, (0.98 g, 65%), m.p. 201° ; ν_{max} 1 620 (CONH) and 3 380 cm^{-1} (NH) ; δ 7.2–7.9 (8H, m, ArH) and 8.6 (1H, s, =CH) ; *m/z* 360 (M^+).

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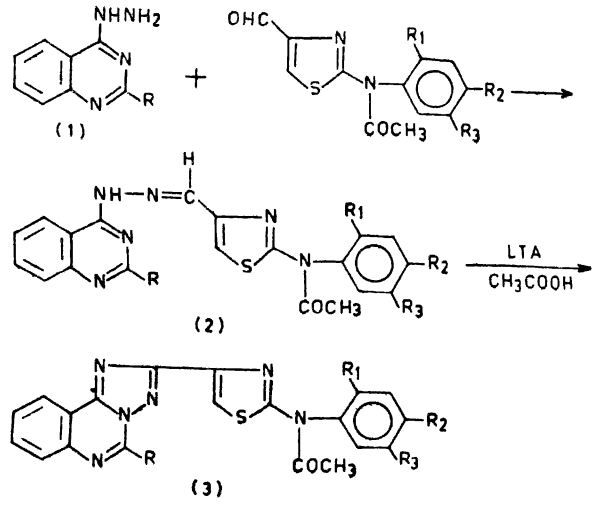

Scheme 1

Triazoloquinazolines. Part-2. Synthesis and Biological Activity of 2-(2′-*N*-Acetyl-*N*-phenyl-4′-thiazolyl)-*s*-triazolo-[1,5-*c*]quinazolines

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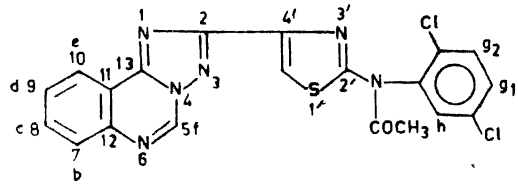
THE reported literature method[1] involving the oxidation of 4-quinazolinylhydrazones by Br_2 in acetic acid gave a mixture of *s*-triazolo[4,3-*c*] and [1,5-*c*]quinazolines. Hence we followed an alternative route to yield exclusively one product, viz. *s*-triazolo[1,5-*c*]quinazolines by oxidising the intermediate 4-quinazolinylhydrazones (**2**) with lead tetraacetate in acetic acid. By this hitherto unreported method we could achieve in the isolation of a single isomer with improved yields (Scheme 1, Table 1).

Experimental

All the m.ps. are uncorrected. Ir (KBr) spectra were recorded on a Perkin-Elmer 599B spectrophotometer and nmr spectra (DMSO-d_6) on a Varian instrument (300 MHz). 4-Quinazolinylhydrazines and 4-formyl-2-(*N*-acetyl-*N*-phenyl-2,5-dichlorophenyl) thiazole were synthesised by reported method[2].

4-Quinazolinylhydrazones (**2**) : Equimolecular quantities of 4-quinazolinylhydrazines and thiazole aldehydes were refluxed in methanol for 2 h. The resulting solids were recrystallised from methanol.

2-(2′-N-Acetyl-N-phenyl-4′-thiazolyl)-s-triazolo-[1,5-c]quinazolines (**3e**) : To 4-quinazolinylhydrazones (**2** ; 0.47 g, 0.00103 mol) suspended in glacial acetic acid (25 cm^3) was added lead tetraacetate (0.6 g, 0.001337 mol) under stirring. After 30 min, the reaction mixture became clear and slowly a solid separated out. The stirring was continued further for 3 h. The resulting solid was recrystallised from acetic acid, (0.25 g), m.p. 318° ; ν_{max} (KBr) 1 680 (N–Ac), 1 620, 1 590, 1 560 and 1 510 cm^{-1} (ArH) ; *m/z* 454 and 456 (M^+) ; δ 2.05 (3H, s, $NCOCH_3$), 8.2 (1H, s, (a)), 8.48 (1H, m, (*o*- and *m*-coupling extreme lowfield (b)), 7.76 (1H, m, 2-*o*-couplings and adjacent to quinazoline ring (c)), 7.96 (1H, m, 2-*o*-couplings each having *m*-coupling (d)), 7.82 (1H, m, *o*-coupling with *m*-coupling merged with other signals (e)), 7.86 (1H, s, (f)), 8.1 (1H, dd, (g_1)), 8.09 (1H, d, (g_2)) and 7.88 (1H, s, (h)).



3e

Similarly, other compounds were synthesised.

TABLE 1—PHYSICAL DATA OF COMPOUNDS **3***

Compd no.	R	R_1	R_2	R_3	Yield %	M.p. °C
3a	H	H	CH_3	H	47	300[a]
3b	H	H	Cl	H	32	303[b]
3c	C_2H_5	Cl	H	Cl	50	315[c]
3d	C_2H_5	H	CH_3	H	45	297[c]
3e	H	Cl	H	Cl	54	318[a]

*All compounds gave satisfactory elemental analyses.

**Solvent for crystallisation : [a]acetic acid, [b]chlorobenzene, [c]dimethylformamide.

Biological activity : Compounds **1**–**5** were evaluated for their antibacterial activity by ditch-plate technique[3] using concentration levels 2 and 5 mg ml^{-1}. The test organisms employed were *Salmonella typhi, Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli* and *Bacillus subtilis*. Compounds **1, 2** and **4** showed activity against *S. typhi* at 2 mg ml^{-1} and *S. aureus* at 5 mg ml^{-1}. At 5 mg ml^{-1} concentration level, compounds **2, 5** showed activity against *E. coli* and **3, 4** showed activity towards *B. subtilis*.

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Analysis of the Essential Fatty Acid rich Seed Oils

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IN the present investigation we have analysed seed oils of six indigenous species : *Sesbania aculeata, S. grandiflora, S. aegyptica, Robinia pseudoacacia* (all Fam : Papilionaceae), *Albizia moluccana* (Fam : Mimosae) and *Pinus roxburghii* (Fam : Pinaceae).

Experimental

The seed samples (purchased from Pratap Nursery, Dehradun) were powdered and extracted with light petroleum ether (b.p. 40–60°). Analytical values were determined according to the recommended procedure[1]. The methyl esters were prepared by the usual method (CH_3OH/H^+)[2]. Tlc (silica gel G, 0.25 mm ; petroleum ether-Et_2O-HOAc=80 : 20 : 1, v/v/v ; detection : charring with 20% aqueous $HClO_4$, ir spectra (Pye-Unicam SP3-100 spectrophotometer), uv spectra (MeOH ; Beckman DK2A spectrophotometer) and glc of methyl esters (Perkin-Elmer F-11 model, DEGS 15% on chromosorb W 45–60 mesh) were performed. In general, oils and methyl esters were examined by various qualitative tests, picric acid test for epoxy group, DNP test for keto group and Halphen test for cyclopropene moiety[3,4] to ascertain the presence or absence of the unusual acids.

Results and Discussion

The uv and ir spectral analyses of seed oils showed no conjugation, *trans*-unsaturation or any unusual functional groups. The analytical characteristics and the fatty acid compositions of the six seed oils are given in Table 1. The oil content varied from 2.8 to 23% and the percentage of saturated acids ranged from 11.54 to 35.78%.

The results show that *S. aculeata* and *P. roxburghii* seeds are rich in oil with high linoleic acid and PUFA contents. Thus, after some modifications, these two oils can play important nutritional role. The remaining four species are also the rich sources of PUFA, but their main drawback is that their oil content is very low. *S. grandiflora* and *S. aegyptica* seed oils resemble remarkably with soybean oil and maize oil, based on their linoleic acid content. All the seed oils resemble the general pattern of oleic-linoleic type.

TABLE 1—CHARACTERISTICS AND FATTY ACID COMPOSITIONS OF SEED OILS*

Sl. no.	Characteristics	*S. ac*	*S. gr*	*S. ae*	*A. mo*	*R. ps*	*P. ro*
1.	Oil content (%)	23.0	8.5	3.5	2.8	6.7	22.4
2.	Iodine value	193.4	116.5	115.9	193.5	188.2	192.7
3.	Sap. value	130.6	194.7	193.9	145.4	110.4	103.2
4.	Ref. index $[\eta]_D^{\circ}$	1.4867	1.4892	1.4829	1.4857	1.4892	1.4845
5.	Methyl ester composition (wt %)						
	16 : 0	10.29	13.77	14.12	12.50	6.85	4.67
	18 : 0	3.58	1.83	6.77	—	—	—
	18 : 1	11.63	26.57	14.12	18.75	4.11	26.93
	18 : 2	68.03	51.07	58.19	30.28	60.00	49.54
	18 : 3	2.05	1.22	—	28.58	—	11.54
	20 : 0	2.68	3.67	6.72	3.12	17.28	1.79
	22 : 0	1.07	—	—	4.50	11.65	4.19
	24 : 0	—	1.83	—	2.33	—	0.89
	PUFA	70.08	52.29	58.19	58.86	60.00	61.08

*S. *ac*=S. *aculeata* ; S. *gr*=S. *grandiflora* ; S. *ae*=S. *aegyptica* ; A. *mo*=A. *moluccana* ; R. *ps*=R. *pseudoacacia* ; P. *ro*=P. *roxburghii*.