

## Photochemistry of Thiocarbonyl Compounds

My first publication was on this topic and pursued it when I started my independent career at Indian Institute of Science, Bangalore.

Self-quenching in Photocycloaddition of thiobenzophenone to Crotononitrile:

A Case of Energy Transfer from  $S_2$ .

R. S. H. Liu and V. Ramamurthy, *Mol. Photochem.*, 3, 261, **1971**.

Thione photochemistry: Cycloaddition in a saturated alicyclic system.

A. H. Lawrence, C. C. Liao, P. de Mayo and V. Ramamurthy, *J. Am. Chem. Soc.*, 98, 2219, **1976**.

Thione photochemistry: Mechanism of the short wavelength cycloaddition of adamantanethione: Evidence for an excimer derived from  $S_2$ .

A. H. Lawrence, C. C. Liao, P. de Mayo and V. Ramamurthy, *J. Am. Chem. Soc.*, 98, 3572, **1976**.

On the mechanism of photocycloaddition of aromatic thiones ( $n, \pi^*$  triplet) to multiple bonds.

N. J. Turro, V. Ramamurthy, *Tetrahedron Letters*, 2423, **1976**.

Oxidation of Thiones by Singlet and Triplet oxygen.

R. Rajee and V. Ramamurthy, *Tetrahedron Letters*, 5127, **1978**.

Wavelength Dependent Photochemical Reactions: Photocycloaddition and Hydrogen Abstraction Reactions of Di-*tert*-butylthione.

R. Rajee and V. Ramamurthy, *Tetrahedron Letters*, 3463, **1978**.

Wavelength Dependent Photochemistry: Photoreduction of Di-*tert*-butylthione.

V. Jayathirtha Rao and V. Ramamurthy, *Indian J. Chem.*, 18B, 265, **1979**.

Energy Wastage in Organic Photochemistry: Self-quenching in Thiones.

R. Rajee and V. Ramamurthy, *J. Photochem.*, 11, 135, **1979**.

Non-bonded Interactions in Cyclobutane-thiones.

K. N. Tantry, P. K. Basu, V. Ramamurthy, C. N. R. Rao, E. A. Seddon and J. C. Green, *Tetrahedron Letters*, 4787, **1979**.

Spectroscopic properties of molecules related to hindered isomers of retinal.

V. Ramamurthy and R. S. H. Liu, *Proc. Indian Acad. Sci.*, 88A, 239, **1979**.

Photochemical Oxidation of Thiones: Di-*tert*-butyl thioketone.

V. Jayathirtha Rao and V. Ramamurthy, *Ind. J. Chem.*, 19B, 143, **1980**.

Photoxidation of Di-*tert*-butylthioiketone.

V. Jayathirtha Rao and V. Ramamurthy, *Curr. Sci.*, 49, 199, **1980**.

Photochemistry of Di-methylthioiketene Dimers.

K. Muthuramu and V. Ramamurthy, *J. Org. Chem.*, 45, 4532, **1980**.

Photolysis of the Dithiolactone-4-isopropylidene-3,3-dimethyl-1-thietan-2-thione; Norrish Type I Reaction.

K. Muthuramu and V. Ramamurthy, *J. Chem. Soc., Chem. Comm.*, 243, **1980**.

Mechanistic investigations into the photochemical oxidation of thioiketones.

N. Ramnath, V. Ramesh and V. Ramamurthy, *J. Chem. Soc., Chem. Comm.*, 112, **1981**.

Strain Assisted  $\alpha$ -Cleavage Reactions of Cyclobutanethiones.

K. Muthuramu, B. Sundari and V. Ramamurthy, *Ind. J. Chem.*, 20B, 797, **1981**.

Photofragmentation Reaction of Thiocarbonyl Compounds.

K. Muthuramu and V. Ramamurthy, *Chemistry Letters*, 1261, **1981**.

Oxidation of Thioiketenes by Singlet Oxygen and Ozone.

V. Jayathirtha Rao and V. Ramamurthy, *J. Chem. Soc., Chem. Comm.*, 638, **1981**.

Non-bonded Interactions in 2,2,4,4-Tetramethyl-1,3-cyclobutanedithione and 2,2,4,4-tetramethyl-3-thio-1,3-cyclobutanedione.

P. K. Basu, U. C. Singh, K. N. Tantry, V. Ramamurthy and C. N. R. Rao, *J. Molecular Structure*, 76, 237, **1981**.

Steric Aspects of the Oxidation of Thioiketones by Singlet Oxygen.

N. Ramnath, V. Jayathirtha Rao, V. Ramesh and V. Ramamurthy, *Chemistry Letters*, 89, **1982**.

Rates of Oxidation of Thioiketones by Singlet Oxygen.

V. Ramesh, N. Ramnath, V. Jayathirtha Rao and V. Ramamurthy, *J. Photochem.*, 18, 109, **1982**.

Efficiency of Singlet Oxygen Production by Thiocarbonyls.

V. Ramesh, N. Ramnath and V. Ramamurthy, *J. Photochem.*, 18, 293, **1982**.

Oxidation of Thioiketones by Singlet and Triplet Oxygen.

V. Jayathirtha Rao, K. Muthuramu and V. Ramamurthy, *J. Org. Chem.*, 47, 127, **1982**.

Strain Assisted  $\alpha$ -Cleavage Reactions of Thioketones: Diphenylcyclopropenethione.  
Sharat Singh, M. M. Bhadbhade, K. Venkatesan and V. Ramamurthy, *J. Org. Chem.*, **47**, 3550, **1982**.

Inhibition of self-quenching in thioketones by micellar compartmentalization.  
V. Ramesh and V. Ramamurthy, *J. Photochem.*, **20**, 47, **1982**.

Photochemical Oxidation of Thioketones: Steric and Electronic Aspects.  
N. Ramnath, V. Ramesh and V. Ramamurthy, *J. Org. Chem.*, **48**, 214, **1983**.

Strain assisted  $\alpha$ -Cleavages Reactions of Thioketones: Cyclobutanethiones.  
K. Muthuramu, B. Sundari and V. Ramamurthy, *J. Org. Chem.*, **48**, 4482, **1983**.

Photofragmentation Reactions of Dithiolactones.  
K. Muthuramu, B. Sundari and V. Ramamurthy, *Tetrahedron*, **39**, 2719, **1983**.

The problem of Triplet Self-Quenching in Thioketone Photochemistry.  
V. Ramesh, N. Ramnath and V. Ramamurthy, *J. Photochem.*, **23**, 141, **1983**.

Upper Excited State Reactions of Thioketenes: Di-*tert*-butylthioketene.  
Sharat Singh and V. Ramamurthy, *J. Org. Chem.*, **49**, 393, **1984**.

Oxidation of Thioketenes by Singlet Oxygen.  
V. Jayathirtha Rao, V. Ramamurthy, E. Schaumann and H. Nimmegern, *J. Org. Chem.*, **49**, 615, **1984**.

Oxidation of 1,3-Cyclobutanedithiones and 3-Thio-1,3-cyclobutanethiones by Singlet Oxygen.  
B. Sundari and V. Ramamurthy, *Indian J. Chem.*, **23B**, 498, **1984**.

Gas-solid reactions: Photochemical oxidation of thioketones in the crystalline state.  
P. Arjunan, V. Ramamurthy and K. Venkatesan, *J. Org. Chem.*, **49**, 1765, **1984**.

Gas-crystal photoreactions: Crystal structures of 4,4'-dimethoxythiobenzophenone and 4,4'-bis dimethylamino-thiobenzophenone.  
P. Arjunan, V. Ramamurthy and K. Venkatesan, *Acta. Cryst. Section C.*, **40**, 552, **1984**.

4-Biphenyl phenyl thioketone and 1-naphthylphenylthioketone.  
P. Arjunan, V. Ramamurthy and K. Venkatesan, *Acta. Cryst. Section C.*, **40**, 556, **1984**.

Structure reactivity correlation in inclusion complexes: Deoxycholic acid di-*tert*-butyl thioketone.

K. Padmanabhan, K. Venkatesan and V. Ramamurthy, *Can J. Chem.*, **62**, 2025, **1984**.

Thiocarbonyl Photochemistry.

V. Ramamurthy, *Organic Photochemistry*, Vol. 7, Ed., A. Padwa, Marcel Dekker, New York, 1985, p, 231.

Synthesis and Stability of  $\alpha$ ,  $\beta$ -Unsaturated Sulfines.

V. Pushkara Rao and V. Ramamurthy, *Synthesis*, **525**, **1985**.

Mechanism of Oxidation of  $\alpha$ ,  $\beta$ -Unsaturated Thiones by Singlet Oxygen.

V. Pushkara Rao and V. Ramamurthy, *Tetrahedron*, **41**, 2169, **1985**.

Laser Flash Photolysis study of Aliphatic Thioketone Triplets. Self-Quenching and Singlet Oxygen Sensitization.

K. Bhattacharyya, C.V. Kumar, B. Jayasree, P.K. Das and V. Ramamurthy, *J. Chem. Soc. Faraday Trans. 2*, **81**, 1383, **1985**.

A Laser Flash Photolysis Study of Triplets of Cyclobutanethiones.

K. Bhattacharyya, B. Nageswara Rao, P. K. Das and V. Ramamurthy, *J. Photochem.*, **32**, 331, **1986**.

Photochemical Behavior of Thioketenes in Solution: Reaction from S<sub>2</sub>.

S. Sharat, H. Neimsgreen E. Schaumann and V. Ramamurthy, *J. Org. Chem.*, **50**, 4799, **1985**.

Regioselectivity in  $\alpha$ -cleavage Reactions: Aryl alkyl cyclopropenethiones.

S. Sharat and V. Ramamurthy, *J. Org. Chem.*, **50**, 3732, **1985**.

Upper excited State Reactions of  $\alpha$ ,  $\beta$ -Unsaturated Thiones: Photocycloaddition to Electron Deficient Olefins.

V. Pushkara Rao and V. Ramamurthy, *J. Org. Chem.*, **50**, 5009, **1985**.

The origin of regioselectivity in  $\alpha$ -cleavage reactions of cyclopropenethions: Potential role of pseudo Jahn-Teller effect in substituted cyclopropenyl systems.

G. Usha, B. Nageswer Rao, J. Chandrasekhar and V. Ramamurthy, *J. Org. Chem.*, **51**, 3630, **1986**.

Triplet State Photophysics and Transient Photochemistry of Cyclic Enethiones: A Laser Flash Photolysis Study.

K. Bhattacharyya, V. Pushkara Rao, V. Ramamurthy and P. K. Das, *J. Chem. Soc. Faraday Trans. 2*, **82**, 135, **1986**.

Short-lived triplets of aliphatic thioketenes.

K. Bhattacharyya, S. Sharat, V. Ramamurthy and P. K. Das, *J. Photochem.*, **35**, 299, **1986**.

Structure-reactivity correlation in inclusion complexes: Deoxycholic acid-thiocamphenilone.

K. Padmanabhan, V. Ramamurthy and K. Venkatesan, *J. Inclusion. Phenomena.*, **5**, 315, **1987**.

A laser flash photolysis study of pivalothiophenone triplets: Steric and electronic effects in thione photoreaction kinetics.

K. Bhattacharyya, V. Ramamurthy and P.K. Das, *J. Phys. Chem.*, **91**, 5626, **1987**.

Photochemistry of  $\alpha$ ,  $\beta$ -unsaturated thiones: Addition to electron rich olefins from  $T_1$ .  
V. Pushkara Rao and V. Ramamurthy, *J. Org. Chem.*, **53**, 327, **1988**.

Photochemistry of  $\alpha$ ,  $\beta$ -unsaturated thiones: Cycloaddition to electron deficient olefins from higher excited states.

V. Pushkara Rao and V. Ramamurthy, *J. Org. Chem.*, **53**, 332, **1988**.

Photochemistry of  $\alpha$ ,  $\beta$ -unsaturated thiones: Cycloaddition of thiocoumarin to electron rich and electron deficient olefins from  $T_1$ .

S. Devanathan and V. Ramamurthy, *J. Org. Chem.*, **53**, 741, **1988**.

Thermal and photochemical cycloaddition reactions of thiocarbonyls: A qualitative molecular orbital analysis.

V. Pushkara Rao, J. Chandrasekhar and V. Ramamurthy, *J. Chem. Soc. Perkin Trans. II*, 647, **1988**.

Photochemical, Photophysical and Theoretical Studies on Cyclobutanethiones:  $\alpha$ -Cleavage Reactions.

B. Nageswar Rao, J. Chandrasekhar and V. Ramamurthy, *J. Org. Chem.*, **53**, 745, **1988**.

Photophysics and Intramolecular Photochemistry of Thiones in Solution.

R. P. Steer and V. Ramamurthy, *Acc. Chem. Res.*, **21**, 380, **1988**.

Thiocarbonyls: Photochemical Hydrogen Abstraction Reactions.

V. Pushkara Rao, B. Nageswar Rao and V. Ramamurthy, *CRC Handbook of Organic Photochemistry and Photobiology*, Edited by W. Horspool and P-Soon Song, CRC Press, Boca Raton, 1995, 793.

Solution Photochemistry of Thioketones.

B. Nageswer Rao, V. Pushkara Rao and V. Ramamurthy, *CRC Handbook of Organic Photochemistry and Photobiology*, Edited by W. Horspool and P-Soon Song, CRC Press, Boca Raton, 1995, 775.

Closed nanocontainer enables thioketones to phosphoresce at room temperature in aqueous solution

N. Jayaraj, M. V. S. N. Maddipatla, R. Prabhakar, S. Jockusch, N. J. Turro and V. Ramamurthy, *J. Phys. Chem. B*, **2010**, *114*, 14320.