The increments, either in oxygen consumption or in glucose oxidation are of the same order of magnitude. The submayillary gland cells, when cultivated in vitro are able to carry out aerobic glycolysis, whereas tissue slices do not show this capacity[3]. The appearance of aerobic glycolysis is a general biochemical characteristic of cultured cells, but it must be emphasized that the female derived cells show an aerobic production of lactic acid twice that of male cells. Nevertheless, in spite of higher oxygen consumption and higher ATP production (tables 1 and 3), the Pasteur effect in female cells is lower. To explain this phenomenon, it is necessary to keep in mind that we are dealing with highly structured system composed of cells in which glycolysis and respiration are strictly correlated and each pathway has a profound effect on the other. In the presence of mitochondria, regulatory factors of glycolysis are changed because they may stimulate the glycolysis by means of all reactions that produce ADP and inorganic phosphate and this auxiliary enzyme system may be referred to as 'ATP-ase in the broadest sense'[10]. Moreover, it has been demonstrated that the Pasteur effect depends essentially on the allosteric properties of phosphofructokinase[11-13], i.e. it is increased by compounds which inhibit this enzyme and decreased by those which enhance its activity. The phosphofructokinase of female cells has a greater affinity for the substrate than that of male cells[14]. It is, therefore, conceivable that in submaxillary gland cells in vitro both mechanisms are working and that the lower Pasteur effect of female derived cells is attribuable mainly to different phosphofructokinase sensitivity.

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Alterations in the phospholipid composition of *Nocardia polychromogenes* during growth[1]

G. K. Khuller and A. K. Trana

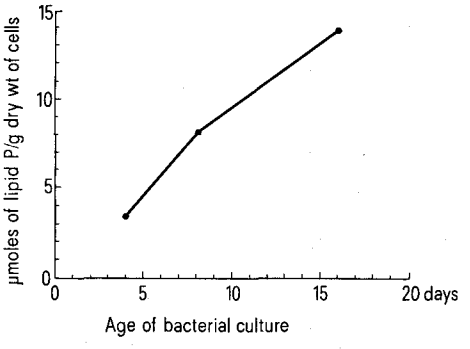
Department of Biochemistry, Postgraduate Institute of Medical Education and Research, Chandigarh 160012 (India), 21 January 1977

Summary. The major phospholipid classes of *Nocardia polychromogenes* were quantitated at different stages of the growth cycle. Significant differences were observed both in the total lipid phosphorus per g (dry weight) of cells, and in the relative percentages of individual phospholipids. The total amount of lipid-phosphorus increased throughout the growth cycle. Cardiolipin and phosphoinositides contents increased with significant decrease in phosphatidyl ethanolamine and unknown phospholipids.

Phospholipids in bacteria are almost exclusively localized in their membranes and these structures are the site of a number of enzymes involved in phospholipid biosynthesis[2]. Cardiolipin, phosphatidyl ethanolamine and phosphatidyl inositomannosides are the major phospholipids of *Nocardia*[3-5]. The effects of culture age are important, because cells in exponential phase of growth are physiologically more active as compared with the stationary phase when the greatest mass is obtained. As a preliminary to a better understanding of phospholipid biosynthesis, metabolism and its regulation in *Nocardia*, we have undertaken a study to investigate the effects of culture age on the phospholipids of *Nocardia polychromogenes*. To our knowledge, alterations of phospholipids during growth have not been investigated in *Nocardia*, although studies with other microorganisms have been reported[6].

Materials and methods. Large quantities of *Nocardia polychromogenes* were grown at 27 °C as described earlier[5] for varying intervals of time. Extraction and purification of lipids were as described elsewhere[7]. The separation, isolation, characterization and quantitation of phospholipids were as detailed in previous publications[5,8].

Results and discussion. The total lipid-phosphorus per g (dry weight) of *Nocardia polychromogenes* during growth is shown in the figure. The changes in the relative percentages of each of the major phospholopid fractions of *Nocardia polychromogenes* with respect to age of the cul-



Quantitation of total lipid phosphorus during growth of *Nocardia polychromogenes*.

Distribution of phospholipids of *Nocarda polychromogenes* during growth

Phospholipid	Age of the bacterial culture (days) 4(4)	8(4)	16(4)
Phosphoinositides	35.7 ± 2.9	45.0 ± 3.3	44.0 ± 3.7
Phosphatidyl ethanolamine	20.7 ± 1.4	12.8 ± 0.7	10.7 ± 1.8
Cardiolipin	33.5 ± 2.2	38.7 ± 2.3	40.2 ± 2.5
Unknown phospholipids	13.5 ± 0.5	3.3 ± 0.8	4.9 ± 3.8

Distribution of total lipid phosphorus (%, mean ± SD).
The number in parentheses represent the number of different batches analyzed.

ture is presented in the table. It is evident from these data that the major phospholipid classes of *N. polychromogenes* represent dynamic chemical constituents of the bacterial cell. They change independently in relative proportions, as well as in their actual percentage of the total cell mass, as a function of the growth stage. Quantitatively, major phospholipids of *N. polychromogenes* behave quite differently during growth. Phospholipids accumulate as the culture ages (figure) similar to that of *E. coli* when grown at 27 °C[11]. Phosphatidyl ethanolamine has been shown to decrease with age in mycobacteria[8], *Streptomyces griseus*[9] and *E. coli-B*[10] as seen in *N. polychromogenes*. We have now observed an increase in Cardiolipin with age identical to *E. coli*[10], whereas a decrease was observed in mycobacteria[8] and *S. griseus*[9]. The increase in phosphoinositides is in accordance with our earlier observations[8,9] with other microorganisms containing these phospholipids. To what extent these changes in phospholipids are related to the synthesis of specific enzymes is at present unknown. More evidence is required at the enzyme level to interpret these changes in lipid metabolism.

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(Z)-9-Tetradecen-1-ol and (Z)-9-tetradecenyl acetate: A potent attractant system for male *Sesamia cretica* Led. (Lep., Noctuidae)[1]

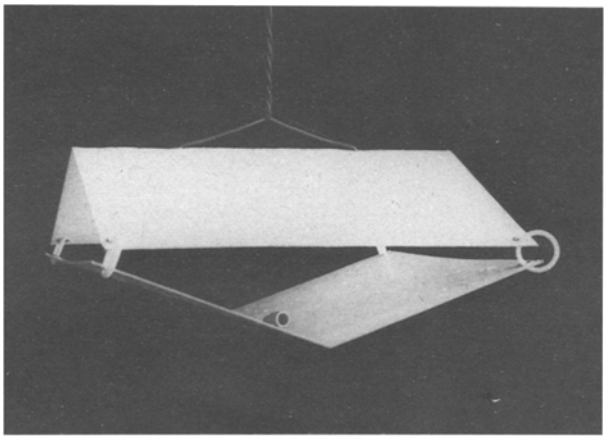
E. Arsura, A. Capizzi, P. Piccardi and Pia Spinelli

Montedison S. p. A., Istituto Ricerche G. Donegani, via G. Fauser 4, I-28100 Novara (Italy), 18 March 1977

Summary. Field studies have shown that a combination of (Z)-9-tetradecenol with (Z)-9-tetradecenyl acetate is an effective attractant for male *Sesamia cretica* Led., a pest of sorghum crops. These studies also indicated that the most effective composition is 75:25 (alcohol:acetate).

During a field study of compounds synthetized[2] to attract insect species of Sudan cotton crops, experiments were carried out to screen 22 compounds (mainly unsaturated long-chain alkyl acetates and their parent alcohols related to known insect sex-attractants).

Initial evaluation indicated that among all compounds tested (Z)-9-tetradecen-1-ol (Z-9-TDOL) and (Z)-9-tetradecenyl acetate (Z-9-TDA) attracted males of a single insect species, the dura stem-borer *Sesamia cretica* Led. The range of distribution of this pest extends from Morocco in the west to northern Algeria, Libya, U.A.R. (Egypt) and the Near East. It is also found in southern Italy, Corsica, Yugoslavia, Bulgaria and Greece. In East Africa *S. cretica* is recorded from Ethiopia, Somalia and the Sudan. The pest mainly attacks sorghum, but also infests maize, sugarcane, wheat and pinnisetum.



A baited trap.

Catches of *S. cretica* were so unusually high that we felt our trapping results would be of interest, particularly since Z-9-TDA is known to be the natural sex-pheromone or one of its components for many lepidopteran species such as *Adoxophyes orana*[3], *A. fasciata*[4], *Clepsis spectrana*[5], *Cadra cautella*[6], *Spodoptera eridania*[7] and *S. littoralis*[8]. As far as we know, Z-9-TDOL has never been involved in the sex-pheromone systems of Lepidoptera.

Z-9-TDOL and Z-9-TDA were 97% isomerically pure, the remaining 3% consisting of the opposite isomer (by GLC analysis on 25 m glass capillary column packed with Ucon 50 HB 5100).

Newly designed insect traps were used in all tests. They are made of weatherproof cardboard, lined with an adhesive substance, 21 cm long × 23 cm wide × ca. 11 cm high (figure). Traps were charged with test chemicals placed on rubber septa (5 × 9 mm rubber-stoppers, sleeve-type, Angelo Ascenso, Milano). They were hung approximately 1–1.5 m above the ground and distributed upwind within the periphery of cotton fields near sorghum and sugar-cane crops, at a density of 2 traps per hectar.

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