

The effect of food quality on egg production and hatching success in the copepod *Acartia clausi*

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Food quality is known to be a major factor affecting egg production rates in marine planktonic copepods. Some diets are better than others for determining higher fertility in copepods (1970) with some diets such as *Phaeocystis* suppressing egg production altogether. Recent studies suggest that food quality can also affect egg viability whereby viable eggs are defined as fertilized eggs that develop to hatching giving rise to a living nauplius (IANORA and POULET, submtd.). The object of this study was to determine the effect of different algal diets on egg production rates and hatching success in the coastal copepod *Acartia clausi*. Forty-six adult females were collected on different sampling occasions from January to December 1991 in Taranto (Italy) coastal water. In a first set of 23 experiments females were sorted and kept individually in containers with 100 ml of 0.45 μ m filtered seawater enriched with 5 ml of laboratory cultured diatom *Thalassiosira rotula* given in excess concentrations from 5.6×10^4 to 15.4×10^5 cells l^{-1} . Egg production and faecal pellet production were determined daily and females were then transferred to new containers with fresh media. To avoid disturbing eggs during their development, we avoided their transfer to new containers and determined egg viability in original containers after 72h. In a second set of 23 experiments the same variables were monitored daily for females kept with the laboratory-cultured dinoflagellate *Prorocentrum minimum* given in excess concentrations from 3.8×10^4 to 1.4×10^5 cells l^{-1} . Mean female longevity was about 25-30 days with some females that lived up to 70 days under these experimental conditions. Egg production was higher in *P. minimum* diets (mean *P. minimum* = 17.3 eggs $f^{-1} d^{-1}$; mean *T. rotula* = 8.4 eggs $f^{-1} d^{-1}$). Egg viability was also much higher with *Prorocentrum* (mean *P. minimum* = 61 %; mean *T. rotula* = 23 %) (Fig.1). In fact, we rarely observed 100% egg viability with *Thalassiosira*. Both groups of females produced viable eggs for up to 30-35 days suggesting that this species does not need to remate as often as others (PARRISH and WILSON, 1978; IANORA *et al.*, 1989). These results confirm those of IANORA and POULET (submtd) that food type strongly influences hatching success. These authors showed that *Prorocentrum* was a more nutritious food than *Thalassiosira* for the production of good quality eggs in *Temora stylifera* since it contained higher quantities of proteins, vitamin C, carbon and nitrogen.

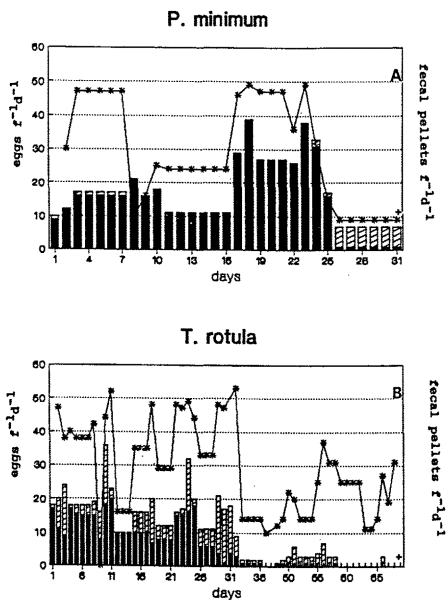


Fig. 1 Daily eggs production, viability and fecal pellets for *Acartia clausi* fed (A) *P. minimum* and (B) *T. rotula*.

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