



## Eksempel: Fremstillingsformer i den akademiske opgave

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Dette eksempel fra Science & Technology (ST) viser, hvordan dele af en *redegørelse*, *analyse*, *diskussion* og *vurdering* kan se ud. Eksemplet bruger kun en enkelt kilde, hvor den studerende i de fleste tilfælde skal inddrage flere centrale og relevante kilder. Indholdet er udarbejdet af ph.d. i Læring & Uddannelse, Tine Wirenfeldt Jensen.

### Redegørelse

The fertilized eggs of marine snails are often enclosed in complex, leathery egg capsules with 30 or more embryos being confined within each capsule. The embryos develop for 1 or more weeks before leaving the capsules. The egg capsules of intertidal species potentially expose the developing embryos to thermal stress, osmotic stress, and dessication stress. **This paper** (Kinehcep, 1982) **describes** the ability of such egg capsules to protect developing embryos from low-salinity stress, such as might be experienced at low tide during a rainstorm.

*Fra (Pechenik, J. A. (2001) A Short Guide to Writing About Biology, Longman NY, s. 141-143), fremhævelser tilføjet.*

### Analyse

Two snail species were studied: *Nucella lamellosa* and *N. lima*. Embryos were exposed at 10-12C either to full-strength seawater (control conditions) or to 10-12% seawater solutions (seawater diluted with distilled water). The ability of egg capsules to protect the enclosed embryos from low-salinity stress was assessed by placing intact egg capsules into the test solutions for up to 9h, returning the capsules to full-strength seawater, and comparing subsequent embryonic mortality with that shown by embryos removed from capsules and exposed to the low-salinity stress directly.

Encapsulated embryos exposed to the low salinities suffered less than 2% mortality, even after low-salinity exposures of 9h duration. In contrast, embryos exposed directly to the same test conditions for as little as 5h suffered 100% mortality. All embryos survived exposure to control conditions for the full 9h, **showing that** removal from the capsules was not the stress killing the embryos in the other treatments. Sampling capsular fluid at various times after capsules were transferred to the diluted seawater. **Kinehcep found that** the concentration of solutes within capsules fell to near that of the surrounding water within about 1h after transfer.

*Fra (Pechenik, J. A. (2001) A Short Guide to Writing About Biology, Longman NY, s. 141-143), fremhævelser tilføjet.*



## Diskussion

**This study clearly demonstrates** the protective value of the egg capsules of 2 snail species faced with low-salinity stress. **However, Kinehcep was unable to explain how** egg capsules of these 2 species protect the enclosed embryos since the capsules did not prevent decreases in the solute concentration of the capsular fluid. **Although Kinehcep plotted the rate** at which the solute concentration falls within the capsules (his Fig 1.), he sampled only at 0, 60, and 90 min after the capsules were transferred to water of reduced salinity. **[An alternative could be to have sampled\*]** at frequent intervals during the first concentration of the capsule fluid falls. **As Kinehcep himself suggests, perhaps the embryos are** less stressed if the concentration inside the capsule falls slowly.

*Fra Pechenik, J. A. (2001) A Short Guide to Writing About Biology, Longman NY, s. 141-143, fremhævelser tilføjet.  
\*Egen indsættelse.*

## Vurdering

These experiments were all performed at a single temperature even though encapsulated embryos are likely to experience fluctuation in both temperature and salinity as the tide rises and falls during the day; **the study should be repeated** using a range of temperatures likely to be experienced in the field. **In addition, I suggest repeating** these experiments using deep-water species whose egg capsules are never exposed to salinity fluctuations of the magnitude used in this study.

*Fra (Pechenik, J. A. (2001) A Short Guide to Writing About Biology, Longman NY, s. 141-143), fremhævelser tilføjet.*