

## CHAPTER V

### CONCLUSION

It may be concluded from the study on the toxicity of cadmium chloride in the postimplanted mouse embryos that:-

1. Using the whole-embryo culture technique, cadmium chloride is an embryotoxic and teratogenic agent which exerted its effect directly on the developing embryos. The most prominent effects in mouse embryos after *in vitro* exposure to cadmium chloride are non-closure of the cranial neural tube region and stunted telencephalic hemispheres. Growth and differentiation of embryos were also affected after *in vitro* exposure to cadmium chloride.
2. Administration of cadmium chloride to pregnant mice during organogenesis resulted in an increase in the incidences of congenital abnormalities. Rib and vertebral abnormalities together with exencephaly and open eyes were the most common defects found in fetuses born to mothers which received cadmium chloride during organogenesis.
3. The *in vitro* effects of cadmium chloride appeared to be comparable to the *in vivo* observations. It induces high incidence of central nervous system defect which is exhibited *in vivo* as exencephaly and *in vitro* as non-closure of the cranial neural tube region.
4. Within the limits of the above data, it is not unreasonable to suggest that cadmium chloride produces teratogenic effects in mice at the dose level that exerts only mild maternal toxicities.

5. Since the *in vitro* effects appear to be comparable to the *in vivo* observations, it is reasonable to suggest that cadmium chloride exerts its teratogenic effects directly on the fetus when administered to pregnant mice during organogenesis.

6. The results of this study demonstrated the usefulness of the whole-embryo culture technique in the rapid qualitative and quantitative assessment of a chemical's teratogenic and toxic activity.

.....



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย