Introduction
Fig. 1 The PI-PLC Pathway: This figure depicts the “classic” pathway by which IP₃ and DAG are generated from PIP₂. The synthesis of PIP₂ from PI is also shown.
Phospholipids are more than just structural components of membranes, for they can be essential cofactors for membrane enzymes, signal precursors or signalling molecules themselves. The first lipid pathway that was discovered to have a signalling role involved the enzyme phospholipase C that hydrolysed the minor lipid PIP$_2$ into two second messengers, IP$_3$ and DAG (Berridge, 1993). Water soluble IP$_3$ enters the cytosol where it triggers the release of calcium from internal stores while DAG remains in the membrane to activate members of the protein kinase C family. The enzymatic reactions leading to the synthesis and hydrolysis of PIP$_2$ are illustrated in Fig. I. Although it was discovered in animal cells, the evidence for PLC signalling in plants is growing. The existence of PIP$_2$, PIP and PI in plant membranes and the role of PLC in stimulus-response coupling has been amply demonstrated (Reddy et al., 1987; Ettlinger and Lehle, 1988; Einspahr et al., 1989; Gilroy et al., 1990; Toyoda et al., 1992; Toyoda et al., 1993; Legendre et al., 1993; Hirayama et al., 1995; Cote et al., 1996; Franklin-Tong, et al., 1996; Pingret et al., 1998; Kashem et al., 2000; Coursol et al., 2000). Genes encoding enzymes that either lead to PIP$_2$ synthesis or metabolize the second messengers generated by PLC action have been cloned from plants (Katagiri et al., 1996; Qin et al., 1997; Mikami et al., 1998; Sanchez and Chua, 2000). Phospholipase C has been cloned from various plants (Hirayama et al., 1995; Yamamoto et al., 1995; Shi et al., 1995a; Hirayama et al., 1997; Pical et al., 1997; Kopka et al., 1998b).

Not much information is available about the molecular organization of PLC in pea. The present study was therefore undertaken with the following objectives in mind:

- To clone and characterize PLC from pea (PsPLC),
- To characterize the calcium binding property of full length PsPLC and the C2 domain,
- To study the genomic organization of PsPLC in pea,
- To study the regulation of PLC at the transcript level,
- To isolate the promoter for the PLC gene from pea.