



milbemycins R = H

In the avermectins the series are designated as follows (Y = CH₃):

- A, Z = CH₃
- B, Z = H
- a, X = CH(CH₃)CH₂CH₃
- b, X = CH(CH₃)₂
- 1, V-W = CH=CH
- 2, V-W = CH₂CH(OH)

For further details of these descriptors, in the milbemycins, see Ref. 228.

In ivermectin (169), V-W = CH₂CH₂, X = CH(CH₃)CH₂CH₃ (major) or CH(CH₃)₂ (minor), Y = CH₃ and Z = H

pharmaceuticals and has contributed dramatically to extending human life and improving clinical practice. As long as Nature continues to yield novel, diverse chemical entities possessing selective biological activities, natural products will play an important role as leads for new pharmaceuticals. An interesting recent example is the alkaloid galantamine (Ni-

valin, Reminyl) (170), originally isolated from the bulbs of the *Amaryllidaceae* family (snowdrops, daffodils, etc.), which has found use in the symptomatic treatment of Alzheimer's Disease (239). It is a reversible and competitive inhibitor of acetylcholinesterase that also interacts allosterically with nicotinic acetylcholine receptors to potentiate the action of