**Problem Set on Empirical Formulas**

1. The analgesic, aspirin, has the following elemental percent composition: 60.00% C, 4.48% H, and

35.53% O.

a. Find the empirical formula of aspirin.

b. If the molar mass of aspirin is 180 g/mol, what is the molecular formula of aspirin?

2. Paradichlorobenzene is the active ingredient in the insecticide known as mothballs. The elemental

percent composition of paradichlorobenzene is: 49.02% C, 2.74% H, and 48.24% Cl.

a. Find the empirical formula of paradichlorobenzene.

b. If the molar mass of paradichlorobenzene 147 g/mol, what is the molecular formula of this

compound?

3. Many sunscreens contain the compound para-aminobenzoic acid (PABA). The elemental percent

composition of PABA is: 61.31% C, 5.15% H, 10.21% N, and 23.33% O.

a. Find the empirical formula of PABA.

b. If the molar mass of PABA is 137 g/mol, what is the molecular formula of PABA?

4. Potassium Ferricyanide is a water soluble red dye used in products such as bingo dabbers. The

elemental percent composition of potassium ferricyanide: 35.62% K, 21.89% C, 16.96% Fe, and

25.53% N.

a. Find the empirical formula of potassium ferricyanide.

b. If the molar mass of potassium ferricyanide is 329 g/mol, what is the molecular formula of

potassium ferricyanide?

5. Lindane is an insecticide used to kill lice. The elemental percent composition of lindane is: 24.78% C,

2.08% H, and 73.14% Cl.

a. Find the empirical formula of lindane.

b. If the molar mass of lindane is 290 g/mol, what is the molecular formula of lindane?