In this article I give the Laws of Thermobiochemistry which unify the Theory of Biology, Chemistry and Physics

First Law of Thermobiochemistry: In an isolated Thermobiochemical System the variations of Energy tend to zero as time elapses

$$dU \rightarrow 0 \quad \text{as} \quad t \rightarrow \infty$$

where $U$ is the Energy of the Thermobiochemical System and $t$ the time elapsed on the Thermobiochemical System

Second Law of Thermobiochemistry: In a Thermobiochemical System the Energy is conserved

$$\frac{dU}{dt} = \frac{dQ + dW + dE + dm c^2 + \gamma dA}{Q + W + E + mc^2 + \gamma A}$$

where $U$ is the Energy, $Q$ the Heat, $W$ the Mechanical Energy, $E$ the Electromagnetic Energy, $mc^2$ the Mass Energy and $\gamma A$ the Surface Tension of the Thermobiochemical System

Third Law of Thermobiochemistry: In a Thermobiochemical System the sum of the variations of Thermomechanical Energy and Biochemical Kinetic Energy is the sum of the variations of Heat and Surface Tension

$$\frac{dPV + dBK}{PV + BK} = \frac{dQ + \gamma dA}{Q + \gamma A}$$

where $PV$ is the Thermomechanical Energy, $BK$ the Biochemical Kinetic Energy, $Q$ the Heat and $\gamma A$ the Surface Tension of the Thermobiochemical System

Fourth Law of Thermobiochemistry: In a Thermobiochemical System the Biochemical Kinetic Energy tends zero as Heat tend to zero

$$BK \rightarrow 0 \quad \text{as} \quad Q \rightarrow 0$$

where $BK$ is the Biochemical Kinetic Energy and $Q$ the Heat of the Thermobiochemical System

Fifth Law of Thermobiochemistry: In a Thermobiochemical System the variations of Entropy are the variations of Heat minus the variations of Mass Energy by Heat average

$$\frac{dS}{S} = \frac{dQ - \sum n_{ij} \xi_i c^2}{Q - mc^2}$$

where $S$ is the Entropy, $Q$ the Heat, $mc^2$ the Mass Energy, $n_{ij}$ the Stoichiometric Coefficients and $\xi_i$ the Extents of Reaction of the Biochemical Reactions of the Thermobiochemical System

Sixth Law of Thermobiochemistry: In a Thermobiochemical System the variations of Entropy due to irreversible Thermobiochemical Processes are always positive

$$dS_i \geq 0$$

where $S_i$ is the Entropy due to the irreversible Thermobiochemical Processes of the Thermobiochemical System

Seventh Law of Thermobiochemistry: In a Thermobiochemical System the Entropy tends to zero as Heat tends to zero

$$S \rightarrow 0 \quad \text{as} \quad Q \rightarrow 0$$

Eighth Law of Thermobiochemistry "Law of Life": In a Thermobiochemical System the sum of the variations of Organic Chemical Potential and the variations of the Biochemical Kinetic Energy are the variations of Life

$$\frac{dBP + dBK}{PV + BK} = \frac{dL}{L}$$
where $BP$ is the Organic Chemical Potential, $BK$ the Biochemical Kinetic Energy and $L$ the Life of the Thermobiochemical System

**Ninth Law of Thermobiochemistry "Law of Health":** In a Thermobiochemical System the sum of the variations of Organic Chemical Potential, Organic Chemical Energy and Biochemical Kinetic Energy is the variation of Health

$$\frac{dBP + dBC + dBK}{BP + BC + BK} = \frac{dH}{H}$$

where $BP$ is the Organic Chemical Potential, $BC$ the Organic Chemical Energy, $BK$ the Biochemical Kinetic Energy and $H$ the Health of the Thermobiochemical System

**Tenth Law of Thermobiochemistry "Law of Evolution":** In a Thermobiochemical System the sum of the variations of Organic Chemical Potential and Organic Chemical Energy is the variation of Evolution

$$\frac{dBP + dBC}{BP + BC} = \frac{dE}{E}$$

where $BP$ is the Organic Chemical Potential, $BC$ the Organic Chemical Energy and $E$ the Evolution of the Thermobiochemical System

**Eleventh Law of Thermobiochemistry:** In a Thermobiochemical System the Organic Chemical Potential tends to zero as the Biochemical Kinetic Energy tends to zero

$$BP \rightarrow 0 \text{ as } BK \rightarrow 0$$

where $BP$ is the Organic Chemical Potential and $BK$ the Biochemical Kinetic Energy of the Thermobiochemical System

**Twelfth Law of Thermochemistry:** In a Thermobiochemical System the Organic Chemical Energy tends to zero as the Biochemical Kinetic Energy tends to zero

$$BC \rightarrow 0 \text{ as } BK \rightarrow 0$$

where $BC$ is the Organic Chemical Energy and $BK$ the Biochemical Kinetic Energy of the Thermobiochemical System

As a consequence as the Biochemical Kinetic Energy tends to zero the Thermobiochemical System comes to extinction

**References**